LIBRARY OF SOFTWARE PROGRAMS FOR THE **IBM** PERSONAL COMPUTER ™

PC DISK

MAGAZINE

VOL. 1 NO. 1 **PREMIER ISSUE** **$29.95**

LOAN ANALYZER:
COMPUTES
PAYMENT AND
AMORTIZATION
SCHEDULE

PERSONAL
CASH FLOW MANAGER:
PART ONE—
AUTOMATIC
CHECK BOOK BALANCER

DISK MAP:
A DISK
MANAGEMENT
UTILITY
FROM PETER NORTON

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In the unlikely event that the disk contained in this issue is defective in manufacture, return it within 30 days after purchase or receipt to PC Disk Magazine, 39 East Hanover Avenue, Morris Plains, NJ 07950, and it will be replaced at no charge. Merchandise for exchange must be accompanied by proof of purchase or a subscription label.

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FROM THE EDITOR

Welcome to *PC Disk Magazine,* the first computer magazine to regularly bring you ready-to-run software for your IBM Personal Computer. In each issue you will find an editorial diskette containing programs, subroutines, and data files. The accompanying manual provides the explanations and instructions needed to make full use of the software. Since every issue will contain new and original materials, *PC Disk Magazine* offers a unique opportunity for you to compile a library of quality software at an attractive price.

That all sounds great, but what exactly do you get? Our goal is to provide you with software that is useful in the broadest sense — software that performs practical tasks, software you can build on, software you can learn from, software that entertains and informs. We want to help you get the most out of your PC by providing the tools to expand and inspire the ways you use it. So we have gathered materials in such diverse areas as business and finance, home and personal, programming tools, utilities, entertainment, and data files. Our editorial interests are intentionally broad so as to provide our readers with the greatest benefit: using *PC Disk Magazine*.

Our desire to foster a spirit of participation in *PC Disk Magazine* goes beyond your use of it as a reader, because our readers are also our authors. We maintain an open submission policy so, with *PC Disk Magazine*, any software author can profit directly from his/her work. At the same time, we can reach out to otherwise inaccessible software sources. If you have a program you think we might be interested in publishing, we'd be delighted to see it. But before sending any materials, please read the Submission Procedure section in this manual.

Whether you are a reader, an author, or both, the key to our success and your satisfaction is communication. Fill out the enclosed questionnaire so we can get to know you. And tell us what you think of the contents of this our premier issue. We look forward to hearing from you now and in the future, and hope you put your first issue of *PC Disk Magazine* to good use.

PUBLISHING PHILOSOPHY

A quick look at the editorial diskette for this premier issue of *PC Disk Magazine* reveals a fairly radical editorial decision: all ten BASIC programs have been published in original source code. Consequently, these programs can be listed and copied in their entirety. We at *PC Disk Magazine* have chosen neither to copy-protect our offerings, nor to make our program code inaccessible—a rather sharp departure from traditional software distribution.

WHY?

The most important reason behind our decision is our desire to make *PC Disk Magazine* of the greatest possible use to you. This desire involves several considerations. First, we want you to be able to learn from these programs. To do so you must be able to study the source code in order to understand the design concepts and programming techniques employed. Second, we want you to be able to adapt these programs to your own needs. You may choose to modify some programs, or expand them, or include them in programs of your own. Once again, you need the source code to do this. The third consideration is that to have the flexibility to use *PC Disk Magazine* most extensively, to modify and expand programs, to create different versions and to experiment, you must be able to make copies of *PC Disk Magazine* materials. Thus, our objective—to establish the closest possible relationship between this magazine and its readers—was the most compelling reason to publish copy-able source code.

Another reason worth mentioning is space. The same program requires 10 to 50 percent less storage space on our editorial diskette in source code than it would in compiled BASIC. So publishing programs in source code lets us give you more software in the fixed amount of diskette space available.

Now that you understand the reasons for our decision, we hope you will minimize our risk by honoring the legal copy restrictions that apply to *PC Disk Magazine*. Use the magazine as extensively as you like for yourself, but do not give listings or copies of our software materials to others. Be aware that the contents of *PC Disk Magazine* are copyrighted private property. Your technical freedom to copy these materials implies no legal right to distribute them. We ask that you act responsibly in your use of *PC Disk Magazine* and not abuse the spirit of free exchange. For our part, we will continue to make our material as useful to you as possible, with the expectation that, properly understood, this policy will best serve you our readers.

TECHNICAL PREFACE

To help our readers make the most of PC Disk Magazine, *we would like to provide some background information concerning the editorial diskette, the accompanying manual, and how to use both. We don't expect all of the following topics to be of interest to all our readers. Nevertheless we have preferred to err on the side of comprehensive support, rather than leave any of our readers confused or bewildered. So we encourage everyone to at least skim this section to assure a solid background for the use of* PC Disk Magazine.

USAGE REQUIREMENTS

PC Disk Magazine has been designed for use on an IBM Personal Computer with a minimal set of hardware components: a keyboard, a monitor, and the PC itself with at least 64K of main memory. The display unit can be a monochrome display adapter and monitor, or the color graphics display adapter with either a color monitor or an RF Modulator and TV set. The computer itself can be the PC or the PC-XT.

These three pieces of equipment are all you need to run the majority of *PC Disk Magazine* software. Wherever possible we try to make the use of any other hardware optional. So, for example, many of the programs will generate printed output, but a printer is not required to use them. Occasionally however, due to the nature of a program or its design, a particular piece of equipment will be necessary. There are two such programs in this issue: *"Hide and Sink"* requires a color display unit, and the *"IBM Matrix Printer Control"* requires a

printer. When a program requires a piece of equipment not in the minimum configuration stated above, this component will be listed as a "Special Requirement" on the program's title page in this manual.

In regard to software, all *PC Disk Magazine* programs are designed to run under DOS 1.1 and DOS 2.0. Furthermore all BASIC programs in the magazine are designed to run under Microsoft's Advanced BASIC. Neither DOS nor Advanced BASIC are provided on the *PC Disk Magazine* diskette; they must be acquired separately. As a rule these are the only outside software elements you will need to use *PC Disk Magazine*. We will occasionally publish a program which uses some additional, publicly available software product, such as the *"WordStar Configurator"* in this issue. Any such additional software will be listed as a "Special Requirement" on the program's title page in this manual.

A closing remark on this topic is not so much a requirment as a recommendation. We recommend that you make a copy of your *PC Disk Magazine* diskette to work with, and save the original as a backup. In some cases, such as the *"Personal Cash Flow Manager"* in this issue, you will have to make a copy of the program in order to use it. The reason is that some programs create additional files as they run, and these files must be stored on diskette as well. You may have noticed that your *PC Disk Magazine* diskette is write-protected. Thus it cannot receive these additional files. So a separate, working copy is needed. These situations will be explicitly mentioned in the manual. In general though, where the manual refers to "your *PC Disk Magazine* diskette" you should read "your working copy of the *PC Disk Magazine* diskette."

THE IBM PC KEYBOARD

In *PC Disk Magazine* we have tried to make our instructions as clear as possible by the consistent use of special key symbols. In addition to all the common typewriter keys, which we print as they would appear when typed, the IBM PC keyboard has a number of special keys. We have designed symbols for these keys, which are intended to resemble as much as possible the keys themselves. Since these symbols are used extensively throughout the instructions, we felt the following road map and glossary would help you, our reader, get any needed bearings.

THE FUNCTION KEYS

There are ten special keys called function keys located at the far left of the keyboard. They are numbered from F1 to F10. This stands for Function One, Function Two etc. These keys are often used to make single keystroke choices or commands.

THE ESCAPE KEY

The ESC key is used most often for exactly what its name implies, to escape (exit) from various functions and processes.

THE CONTROL KEY

This key is always used in conjunction with another key by pressing this key and the other key simultaneously. The purposes of the Control key vary widely depending on the application program.

THE TAB KEY

This key is commonly used for horizontal tabbing in text files. It is sometimes used by programs to allow rapid cursor movement during full-screen data entry.
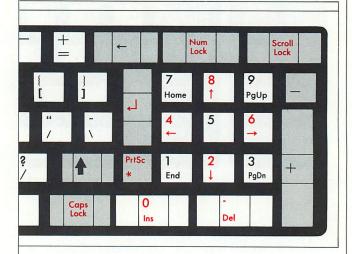
THE BACKSPACE KEY

The Backspace key is used to correct typing errors. By simply pressing the key the preceeding character is erased and a new character can be entered.

THE SHIFT KEY

The Shift key is actually located on each side of the keyboard.

It is used in conjunction with other keys to *capitalize letters*, get special symbols like: ! @ · # $ % % * () and other special functions.

PrtSc * THE PRINT SCREEN KEY

This key is used with the Shift key to get a printout of exactly what is on the screen. In computer lingo this is called a screen dump, a dump of all the information on the screen to the printer. In *PC Disk Magazine* we also refer to this capability as "The IBM Print Screen Facility."

↵ THE ENTER KEY

This is the most used key on the keyboard. Most every time you need to give information to the computer you have to press this key to ENTER that information. This key can also be thought of as the carriage return, since it works similarly to the RETURN key on a typewriter.

Num Lock THE NUM LOCK KEY

Much like the Shift key, this key controls whether the numeric keypad will print numbers or act as cursor movement controls. You can tell that the NUM LOCK is on by pressing any of the number keys to see what is displayed on your screen. If it is the number, then the NUM LOCK is off. If it isn't, then NUM LOCK is on. To change the setting press NUM LOCK once.

2↓ 4← 6→ 8↑ THE CURSOR CONTROL KEYS

These are the arrows that point up, down and to each side. The NUM LOCK has to be on for these keys to be functional. These keys control cursor movement within some *PC DISK*

MAGAZINE programs. They will move the cursor in the direction of the arrow.

⌨ THE INSERT AND DELETE KEYS

These keys really mean the INSERT and DELETE keys. And that is exactly how they are used. INS is used to insert new information and DEL is used to delete unwanted information. They are commonly used when editing BASIC programs, and can often be used when running BASIC programs as well.

⌨ THE CAPS LOCK KEY

This key is used to save you from having to hold the shift key down all the time to get capital letters.

⌨ THE CONTROL AND SCROLL LOCK KEYS

This key combination deserves special mention because of its importance in BASIC, the language of most *PC DISK MAGAZINE* software. These keys used together will interrupt the processing of any BASIC program. The keys should be used with caution because some interruptions can require you to start an entire procedure from the beginning.

TERMINOLOGY

In the preceding section we identified the special key symbols used in this manual, and gave a name to each one. For example:

⌨

is called the Enter key. In our instructional narrative, it sometimes makes more sense to refer to a special key by its name rather than its symbol. Thus the key names in the preceding section are also special terms for the purposes of this manual. Familiarize yourself with the names to facilitate your use of the manual, and refer to the preceding section as a glossary of key names when necessary.

In addition to the key names, a few other terms and phrases are used in this manual that may be unfamiliar to you.

We commonly speak of putting a diskette in the "default drive." This may seem like a needlessly vague phrase. After all, we know a diskette drive always has a one letter identifier associated with it, so why not refer explicitly to that letter? The problem with using an explicit letter reference is that it can create confusion about what exactly you must do. In other words, operationally it does not matter whether you put the diskette in the A Drive, the B Drive or even the C Drive (if you have a third diskette drive). What matters is that you put the diskette *in the drive that is currently active*, i.e. the drive whose letter prompt currently appears on the screen. This is your "default drive" because any disk command without a drive letter will look at the diskette in this active drive. So when you put a diskette in the "default drive," you can then

issue commands referencing that diskette without the use of letter identifiers.

Every start-up procedure for a BASIC program requires you to "Load Advanced BASIC into your PC." To run a *PC Disk Magazine* BASIC program, the BASIC Interpreter must be up and running on your machine—you must be "in BASIC." BASIC is really a program like any other. To start it you must load it from a disk into your PC and start it running. This is precisely what happens when you put your DOS diskette (or any diskette with the file BASICA.COM) in the default drive and type:

BASICA ⏎

By so doing you "Load Advanced BASIC into your PC."

When in BASIC, there are two kinds of commands: Direct and Indirect. Direct commands, like Load and Run, are executed immediately. Indirect commands are preceded by a line number; they are not to be executed at the time they are typed in, but when the program is run. You can assign a direct command to a function key, so that every time the function key is pressed, that command is executed. The direct/indirect distinction and its consequences give you some background for the *"Basic Program Editor"* in this issue.

One last bit of terminology. The *"IBM Matrix Printer Control"* in this issue makes mention of "control codes," such as a top-of-page code and a tab code. A control code can be thought of as a character just like a letter or a number, only rather than causing some character to appear, it causes an action of a different sort. It functions as a signal to a peripheral piece of equipment, like a printer, causing that device to perform a specific action, like move the paper to the top of a new page. Control codes for the printer are the basis of the *"IBM Matrix Printer Control."*

TEXT CONVENTIONS

Most of the textual conventions of this manual are fairly obvious. The use of special key symbols has been covered. The use of special key names in the narrative text has been discussed. That leaves two brief additional remarks concerning command lines.
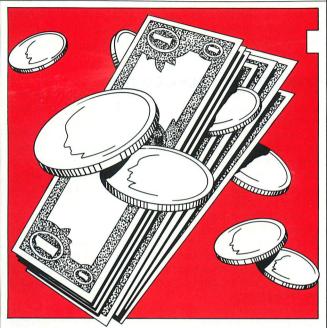
The lines set apart from the narrative text, in bold print and a different color, are commands that should be typed in exactly as they appear. When two key symbols appear immediately next to each other in such a command line, they should be pressed simultaneously. For example:

⬆ Scroll Lock

means press the Shift key and the Print Screen key simultaneously, thereby printing a copy of the current screen on your printer.

There is one exception to typing in command lines exactly as they appear. When a command includes a phrase such as "somename" or "programname" or "yourfile" you should replace that phrase (but not any punctuation) with a valid file name of your choice when you enter the command.

⌶⌶⌶ USINESS & FINANCE

LOAN ANALYZER
By Zyncon Inc.

Special Requirements: None
Files Used: LOANS.BAS

Interest rates have just dropped. You'd like to know how this will affect the car loan you've just applied for and the monthly mortgage payments on the house you're negotiating to buy. And you don't want to spend half the day doing the calculations. You need LOAN ANALYZER.

You supply LOAN ANALYZER *with three of four key loan features—interest rate, amount borrowed, duration of the loan, or payment per period—and it will compute the value of the fourth. How would borrowing more or less affect your loan payments? How might increasing the length of your loan affect the amount you can borrow, given a certain maximum monthly payment you can make? How would different interest rates affect the answers to these questions? Ask* LOAN ANALYZER.

On a loan specification screen, you specify three of four fixed loan features and tell LOAN ANALYZER to calculate the missing item. Once the computer has calculated the dependent loan item, you have the option to request a detailed payback schedule. LOAN ANALYZER will show you a period by period schedule of your payments on a second screen, 12 periods at a time. You can easily go back and change any loan parameter, and the computer will quickly recalculate. Both the specification and the payback schedule screens can be printed, and in addition you can have a complete detail payback schedule printed on your printer.

CONCEPTUAL BACKGROUND

The LOAN ANALYZER uses the "add-on" method for installment loan calculations. Total interest over the life of the loan is computed, based on an unchanging principal balance. Total interest is then added to the amount borrowed, and that sum is divided by the number of payment periods, to obtain the payment per period. In the case of a balloon payment at the end of the loan, the total interest due remains the same, but the principal amount to be repaid is reduced by the amount of the balloon payment.

In the detail payback schedule for an installment loan, the "payoff amount" is computed using the Rule of 78's. This widely used calculation method assigns a declining proportion of the total interest due on the loan to each payment period. Thus, you pay back less principal in the beginning of your loan, since you are paying more interest. This is reflected in the "payoff amount."

There are instances where the Rule of 78's cannot be applied because the interest apportioned to the early periods actually exceeds the period payment itself. In these cases, the LOAN ANALYZER computes a simple linear repayment of the loan, whereby the same fixed amount of principal and interest are paid out in each period. Both the displayed and printed payback schedules will show the message "(Linear Decline)" at the top of the payback table when this special situation occurs. Be aware in this case that Cumulative Principal, Cumulative Interest, and Payoff Amount are simple linear progressions.

Mortgages are calculated using the traditional method of amortization. Interest in each payment period is computed on a declining principal balance. In the case of a final balloon payment, the balloon amount is treated like an add-on loan over the life of the mortgage; the difference between the principal amount and the balloon amount is amortized in the traditional manner.

One warning in connection with the LOAN ANALYZER. There are limitations to the accuracy of arithmetic calculations in any computer language. The LOAN ANALYZER is written in BASIC, and BASIC offers good, but not deadly, arithmetic precision. Hence, you may notice some minor variation in the results when specifying different parameters for the same loan. These are due to the limitations of BASIC, not errors in the implementation of LOAN ANALYZER.

FOR AN INSTALLMENT LOAN, THE "PAYOFF AMOUNT" IS COMPUTED USING THE RULE OF 78'S.

START-UP

To start *LOAN ANALYZER* load Advanced BASIC into your PC by typing:

BASICA ⏎

Then put the *PC Disk Magazine* diskette into your default drive. Type:

RUN"LOANS ⏎

LOAN SPECIFICATION

The first screen to appear is the loan specification screen. You enter values for the three loan features you want to set, and then instruct the computer to calculate the unentered item.

You are first asked whether this is to be an installment loan or mortgage. Type I or M accordingly. At this point, the lower portion of your screen will display the loan parameters for you to enter, along with placeholding values for each parameter. The rules for entry are not difficult. Enter all numbers with no commas and type in the decimal point if your entry is not an integer. Push:

⏎

after every entry to go to the next parameter. To leave a parameter value unchanged, type:

⏎

when the blinking cursor is at the beginning of that parameter. To remove the value for a parameter (so that it becomes the item to be calculated), press the Space Bar once at the beginning of the entry field, then push:

⏎

This action will blank out the item's current value. Finally, to replace a value, simply type in the new value. As soon as you start typing, you will see the old value disappear.

The key loan parameters have a number associated with them in the left-hand margin. To use the *LOAN ANALYZER* you must fill in three of these four parameters. The other two loan parameters, "Final Balloon Payment" and "Payment Frequency," must be assigned values in the specification process; they cannot be calculated by *LOAN ANALYZER*. They are included in this lower portion of the screen to make it easy for you to examine numerous loan scenarios.

The specification process in *LOAN ANALYZER* is simply a matter of going through these six loan parameters in sequence, entering a value for each (or leaving the value there unchanged), with the exception of the key loan parameter to be computed. The value for the key loan parameter to be computed must be blanked out (by using the Space Bar) or set to 0. If you enter an incorrect value for a parameter, you cannot go back up to correct it. You must finish going through the list of parameters and then cycle through again to make your change. Note well that to set the key parameter to be

THE FIRST SCREEN TO APPEAR IS THE LOAN SPECIFICATION SCREEN.

computed, you must make that parameter's value blank or 0, while entering valid settings for all the other parameters.

"Amount to Borrow" can be any amount up to $10 million. Enter a final balloon payment only if the loan will not be repaid in full by fixed, even payments. For "Annual Interest Rate," you can enter any two digit number with up to three decimal places. "Duration of Borrowing" should be any integral number of years up to 99, and a number of months between 1 and 12 separated by a comma. The "Payment Frequency" must always be entered. Acceptable values are M for monthly, Q for quarterly, and Y for yearly payments. M is there by default. Finally, "Payment per Period" can be any dollar amount up to $1 million.

```
        L O A N   A N A L Y Z E R  --  SPECIFICATION
        ═══════════════════════════════════════════════

Installment Loan or Mortgage :        M    (I/M)
_____

 (1)         Amount to Borrow: $    75000.00
           Final Balloon Payment: $       0.00
 (2)         Annual Interest Rate:    13.750 %
 (3)         Duration of Borrowing:   40,00  YY,MM
             Payment Frequency:        M    (Monthly, Quarterly, Yearly)
 (4)         Payment per Period: $    863.01

Please fill in 3 of 4 key parameters above.
PARAMETERS OK
Detailed Payback Schedule (Y/N) ? _
F1 to calculate, F2 to clear, F6 to quit.
```

A completed Loan Specification screen.

The *LOAN ANALYZER* does not validate your entries until you finish making the last entry, "Payment per Period." After specifying this last parameter, you will see one of two messages at the bottom of your screen. If your specification is fine, the message PARAMETERS OK will appear. Otherwise, there will be a message telling you which parameters are in error. In either case, you will see the cursor go to the far right side of your screen, opposite "Payment per Period," and stay there flashing under a faint W.

CALCULATION

The *LOAN ANALYZER* is now in a wait state, awaiting instruction about what to do next. Your choices are simple. If you want the computer to calculate the missing parameter, and your specification is complete, push:

[F1]

If you want to change or correct a parameter, push:

[↵]

The cursor will return to the first parameter entry field so that you can cycle through the parameters again. If you want to start the specification process over from the beginning (for example, to examine another type of loan), push:

`F2`

and the *LOAN ANALYZER* will restart with its first question "Installment Loan or Mortgage." To end execution of the program, push:

`F6`

These commands are only valid when *LOAN ANALYZER* is in the wait state.

GETTING TO THE PAYBACK SCHEDULE

When you request calculation for a valid loan specification, the computer will proceed to compute and then fill in the missing item. Your next choice is whether or not to display the payback schedule for a maximum of 60 payback periods, displayed 12 periods at a time. For monthly and quarterly payment frequencies with more than 60 payment periods, the *LOAN ANALYZER* will consolidate the period payments into annual totals. (It does not recalculate based on a yearly payment frequency.) Hence, the duration of any loan must be 60 years or less for a detail payback schedule to be displayed. If the loan is more than 60 years, calculation can still be done, but the *LOAN ANALYZER* will print a message at the bottom of your screen stating that a detail payback schedule cannot be displayed, and will return to the wait state for further instructions. If payback schedule display is possible, a question appears at the bottom of the screen asking whether you want to see the display. Entering "N" for no sends the *LOAN ANALYZER* back to the wait state. Answering "Y" for yes leads you to the payback schedule screen.

THE PAYBACK SCHEDULE

The payback schedule display lists the loan parameters at the top of the screen. If the payment periods have been consolidated to annual totals there will be a message after the parameters stating that the periods represent annual consolidations. If the loan is an installment loan and the Rule of 78's cannot be applied (see discussion above), a message "(Linear Decline)" will appear as well. Then the 12 payment periods will be displayed. For an installment loan, the columns will be "Cumulative Principal Paid," "Cumulative Interest Paid," and "Payoff Amount." A mortgage will have the columns "Current Period Principal Paid," "Current Period Interest Paid," "Cumulative Principal Paid," "Cumulative Interest Paid" and "Unpaid Principal." You can effectively scroll through the payback schedule 12 periods at a time. To do so, push:

`F3`

THE DURATION OF ANY LOAN MUST BE 60 YEARS OR LESS FOR A DETAIL PAYBACK SCHEDULE TO BE DISPLAYED.

This will display the next 12 periods. To view the previous 12 periods, push:

Any screen may be printed using the IBM PC Print Screen Facility, push:

[↑] [PrtSc *]

In addition, a complete payback schedule, on a nonconsolidated basis, can be printed on your printer by pushing:

[F7]

Even if the screen display is consolidated, this printed schedule will not be so.

```
          L O A N   A N A L Y Z E R  --  MORTGAGE PAYBACK SCHEDULE
          ============================================================

                     Amount: $    75000.00      Annual Interest Rate: 13.750 %
     Final Balloon Payment: $        0.00      Duration of Borrowing: 40.00 YY,MM
         Payment per Period: $      863.01       Payment Frequency: Monthly

            |  Current  |  Current  |   Cumul.   |   Cumul.   |   Unpaid
    Month   | Principal | Interest  | Principal  |  Interest  | Principal
       1    |    3.64   |   859.38  |     3.64   |    859.38  |  74996.36
       2    |    3.68   |   859.33  |     7.32   |   1718.71  |  74992.68
       3    |    3.72   |   859.29  |    11.04   |   2578.00  |  74988.96
       4    |    3.76   |   859.25  |    14.80   |   3437.25  |  74985.21
       5    |    3.80   |   859.21  |    18.60   |   4296.46  |  74981.40
       6    |    3.85   |   859.16  |    22.45   |   5155.62  |  74977.55
       7    |    3.89   |   859.12  |    26.34   |   6014.74  |  74973.66
       8    |    3.94   |   859.07  |    30.28   |   6873.81  |  74969.72
       9    |    3.98   |   859.03  |    34.26   |   7732.84  |  74965.74
      10    |    4.03   |   858.98  |    38.29   |   8591.82  |  74961.71
      11    |    4.07   |   858.94  |    42.36   |   9450.76  |  74957.65
      12    |    4.12   |   858.89  |    46.48   |  10309.65  |  74953.52
      13    |    4.17   |   858.84  |    50.65   |  11168.49  |  74949.35
      14    |    4.22   |   858.79  |    54.87   |  12027.29  |  74945.13

     472    |  778.31   |    84.70  |  68386.02  | 338955.20  |   6613.98
     473    |  787.23   |    75.78  |  69173.25  | 339031.00  |   5826.76
     474    |  796.25   |    66.76  |  69969.50  | 339097.70  |   5030.51
     475    |  805.37   |    57.64  |  70774.86  | 339155.40  |   4225.14
     476    |  814.60   |    48.41  |  71589.46  | 339203.80  |   3410.54
     477    |  823.93   |    39.08  |  72413.40  | 339242.80  |   2586.61
     478    |  833.37   |    29.64  |  73246.77  | 339272.50  |   1753.23
     479    |  842.92   |    20.09  |  74089.69  | 339292.50  |    910.31
     480    |  910.31   |   -47.72  |  75000.00  | 339244.80  |      0.00
```

The comprehensive, detail payback schedule.

You can return to the *LOAN ANALYZER* Specification screen at any time by pushing:

To exit the program, push:

[F6]

If you choose to return to the specification screen, the current loan specification will be redisplayed, and the *LOAN ANALYZER* will be in the wait state, allowing you to easily change a parameter. To go through the parameters again, push:

[↵]
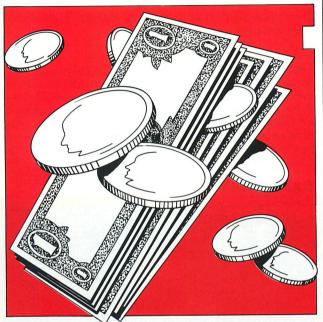
To start a new specification, push:

[F2]

To return to the payback schedule, push:

[F1]

BUSINESS & FINANCE

AUTOMATIC BAR CHARTER
By Mirror Images Software, Inc.

Special Requirements: None.
Files Used: AUTOBAR.BAS

If you've ever wanted to turn a few dozen numbers into a bar chart, without cutting, pasting, or programming, AUTOMATIC BAR CHARTER *is for you. With* AUTOBAR *you can produce a bar chart just as quickly as you can type in the data.*

AUTOBAR can handle up to 36 individual data values. You can plot single bars, or group your data in sets of up to four values each to produce clustered bar charts. The specifications and data for a bar chart can be saved and reloaded.

To set up your bar graph, enter your data, label it, type in a title for the graph and the scale, and hit the graph key. Use the computer's scale increment or specify your own, and that's it —you have your bar chart. You can flip back to the screen with your data and titles, make any desired changes, and plot

again, all on one screen. You can print either your data screen or the bar chart at any time.

START-UP

To start the *AUTOMATIC BAR CHARTER,* load Advanced BASIC into your PC. Type:

<div align="center">

BASICA ⏎

</div>

Then place your *PC Disk Magazine* diskette in the default drive and type:

<div align="center">

RUN"AUTOBAR ⏎

</div>

First, you will be asked if you want to load an old graph. If you answer "Y" for yes, *AUTOBAR* will display a list of graphs on the default drive along the top of the screen, and prompt you in the lower right-hand corner of the screen for the name of the one you want to load. Answering "N" for no results in the program asking how many bars to a group you want for this new graph. Any response greater than one will create a clustered bar graph.

DATA ENTRY

```
VALUE  LABEL              VALUE  LABEL
100    Jan                280    Oct
93                        288
120    Feb                300    Nov
105                       311
140    Mar                320    Dec
122                       335
160    Apr
146
180    May
170
200    Jun
198
220    Jul
231
240    Aug
255
260    Sep
274

         TITLE OF THE GRAPH =)  Western Region Sales  *values -f1  =  f6-  add *
         TITLE DESCRIPTION =)   (Project - Actual)    labels -f3  =  f7-  save
         SCALE DESCRIPTION =)   Units (000)           delete -f4  =  f8-  graph
                                                     *titles -f5  =  f9-  load*
         MIRROR IMAGES SOFTWARE, AUTOBAR (C) 1983                f10  EXIT
```

A completed graph entry screen.

For a new graph, you will see two column headings at the top of the screen: "Value" and "Label". Under Value will be six underscores. This is the prompt for the first data value. Enter a number up to six digits long (five with a decimal point). *AUTOBAR* will let you enter only numbers and a decimal point for the data fields. Trying to enter more characters than a field can hold results in the cursor looping back to the first position of the field, and you will start typing over what you initially entered. When you've entered the value you want, push:

<div align="center">

⏎

</div>

A group of underscores will now appear next to the data val-

ue, under the Label heading. This is the prompt for the bar label. Enter from three to six characters, as indicated by the number of under'scores. (This number depends on the number of bars to a data group.) When you've entered a label, push:

[↵]

and you will be prompted for the next number. When creating a clustered bar chart, you are prompted for the bar label only once per data group, with the first data value in a group.
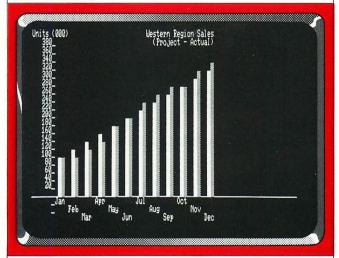
Proceed to enter your data values and bar labels in the manner described. To end this process, push:

[↵]

for the first data value in a group. The cursor will move to the bottom of the screen to prompt you for a graph title, then a graph subtitle, and finally, a label for the scale (the Y axis). With this information entered, your bar chart specification is complete.

You are now presented with an activity menu in the lower right-hand corner of your screen. Make your choice by pressing the appropriate function key.

GRAPHING

A sample bar graph.

The crux of *AUTOBAR* is F8, the graph function. Push:

[F8]

A question will appear on your screen concerning which scale to use for the graph. You can accept the computer's suggested default, by pushing:

Y [↵]

or you can specify your own value within the limits given. As soon as you reply, the graph will appear on your screen. You

MAKE YOUR CHOICE BY PRESSING THE APPROPRIATE FUNCTION KEY.

can print the graph with the IBM PC Print Screen Facility. To do so, push:

⬆️ | PrtSc *

Return to the specification screen by pressing any other key. On the specification screen, anything can be edited: F1 lets you edit the bar values; F3 lets you edit the bar labels; F5 lets you edit the titles.

EDITING

The editing process is the same in all three cases. When you choose to edit, two squares appear on either side of the first item in the category you want to change. These squares indicate the value currently available for editing. Move these squares with the vertical cursor control keys. Push:

2 ↓

to move the squares down one entry. Push:

8 ↑

to move the squares up one entry. Move the squares until they are on either side of the value you want to change. If these cursor control keys do not work, push:

Num Lock

(The keys may not be in cursor control mode.) When the squares are opposite the desired value, push:

F2

to open that value for editing. Now type in the new value you want. Use spaces to eliminate any trailing digits or letters. When the new entry is complete, push:

↵

If you choose not to make a change, just push:

↵

You're now ready for the next activity choice.

F4 lets you delete values. The deletion process is the same as the editing of data values, except that it works on data groups rather than on individual data items. Position the squares to the first value in the data group to be deleted. (The squares will move from first group value to first group value, anyway.) Then push:

F2

and the values will be deleted. F6 lets you add values by simply reactivating the underscore prompting after the current last data item in the list. Type in as many more values and associated labels as you wish. To end the addition process, push:

↵

TWO SQUARES INDICATE THE VALUE CURRENTLY AVAILABLE FOR EDITING.

on a blank data line for a group. You will then have a chance to change any of the three titles before returning to the activity menu. To leave a title line unchanged, push:

⏎

FILING
F7 and F9 are complementary activities that let you save and reload bar charts. To save the current bar chart, push:

F7

Following this keystroke, the activity menu will disappear and a prompt for the filename under which you wish to save your graph will appear in its place. If you enter a filename already in use, you will be told so, and given the option to replace it or use another filename. When the file has been saved, the activity menu will reappear along with your current graph data. The specification for the graph (including the data) will be saved, but not the graph itself. Thus, when you select F9, and choose which bar chart to load, you are presented with the complete table of data and titles for that graph. To regenerate the graph itself, push:

F8

Loading a pre-existing bar chart will wipe out whatever graph you were just working on, so save your current graph before loading a new one.
To end *AUTOBAR*, push:

F10

This will end execution and leave you in BASIC. One small warning with *AUTOBAR:* Because of the way BASIC cleans up variable storage while executing, *AUTOBAR* may start to behave strangely if run for more than *one continuous hour.* Should this happen, end the program, leave BASIC, return to BASIC, and restart *AUTOBAR*.

F7 AND F9 ARE COMPLEMENTARY ACTIVITIES THAT LET YOU SAVE AND RELOAD BAR CHARTS.

CALLING ALL PROGRAMMERS!!

If you have written software for the IBM PC that you feel would be of use or interest to others, *PC Disk Magazine* would like to know about it. Publishing is no longer just for poets and prosaists, but now it's for programmers too. Ask for our Software Submission Plan by writing to:

> *PC Disk Magazine*
> Dept. 732
> One Park Avenue
> New York, N.Y. 10016

⊟ XPANDING THE CODE

When you list any of the BASIC programs on your *PC Disk Magazine,* you will find that the code is often quite dense, and there is a conspicuous scarcity of comments. This does not represent the latest standard in BASIC coding. We would have loved to space the code out in an eye-catching fashion, and document it thoroughly with comments.

Unfortunately, the line numbers and comments take up storage space, and storage space is a precious resource to us and our readers at *PC Disk Magazine*. So we were forced to economize on space in order to maximize our product offering. To unravel the BASIC code, we suggest that you put it in a form that you can edit with some system editor (EDLIN or WordStar, for example) and then expand the spacing. To do this, you must convert the program from the form it is in on the *PC Disk Magazine* diskette to a standard ASCII file, which an editor can manipulate. The procedure for performing this conversion is to load the program from the *PC Disk Magazine* diskette into BASIC, and then save it with the A option, to save it as an ASCII file, onto another diskette. Specifically, first load advanced BASIC by typing:

BASICA ↵

then put the *PC Disk Magazine* diskette in the default drive. Type:
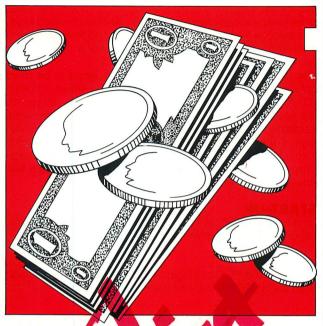
LOAD *"programname* ↵

where "programname" is the name of a BASIC program on the *PC Disk Magazine* diskette. Lastly, replace the *PC Disk Magazine* diskette with a work diskette and type:

SAVE *"programname",* A ↵

An ASCII version of the program will now be written on this work diskette. You can then exit BASIC and call this program file into an editor. Use the editor to start a new line at every colon in the file. This will make the code much easier to read and the logic, thereby, more apparent.

WORDSTAR CONFIGURATOR
By John Schnell

Special Requirements: WORDSTAR Program, Release 3.2X
Files Used: WSCONFIG.BAS
             Copy of WORDSTAR (e.g., WS.COM)

Every time you start WORDSTAR, *all of the editing features are initialized to their original ''factory settings.'' This forces you to go through a start-up ritual of resetting various features to the values you want. The* WORDSTAR CONFIGURATOR *lets you make permanent changes to the initial feature settings so that* WORDSTAR *will come up the way you want it, ready to run. With the* WORDSTAR CONFIGURATOR *you can even make several copies of* WORDSTAR *with different initial settings, each copy appropriate to particular text processing activity. Of course, you can still change your initial feature*

settings during your WORDSTAR *session if you choose.*

The original WORDSTAR *program design includes an internal table of values, which represent the current settings for each of the editing features. The* WORDSTAR CONFIGURATOR *works by making permanent changes to the initial values in this table. Editing features are grouped into categories, and for each category there is a single screen with the menu of features you can change. With the use of ten function keys, you select a feature, specify a value, and go from one menu to another. The feature menus always show you the current values of all features displayed.*

The *WORDSTAR CONFIGURATOR* is designed to be used only with *WORDSTAR* releases in the 3.2 series. *WORDSTAR* version 3.3 has its own configuration facility, so you do not need the *WORDSTAR CONFIGURATOR* for it. Versions earlier than the 3.2 series used a different internal table design, so the *WORDSTAR CONFIGURATOR* cannot modify them. The *WORDSTAR CONFIGURATOR* can identify inappropriate versions of *WORDSTAR* automatically and will refuse to alter them.

START-UP

To run the *WORDSTAR CONFIGURATOR* you must first load Advanced BASIC into your PC. Type:

<p style="color:red; font-weight:bold; text-align:center; font-size:large">BASICA ⏎</p>

Next, put your *PC Disk Magazine* diskette in the default drive. Start the *WORDSTAR CONFIGURATOR* by typing:

<p style="color:red; font-weight:bold; text-align:center; font-size:large">RUN "WSCONFIG ⏎</p>

The "Main Menu" a diagram of the ten function keys with accompanying selection labels, will appear on the screen. This same function key menu format is used consistently throughout the *WORDSTAR CONFIGURATOR*. The menus for different groups of editing features simply have a different menu title and different labels for the function keys. The bottom half of the screen contains a message box, where prompts, instructions and responses will appear. Initially this message box beneath the Main Menu will ask you to start the program by pressing:

> F1

MULTIPLE WORDSTARS

You are next asked to specify the name of the *WORDSTAR* file you intend to configure, and its disk drive location. The standard *WORDSTAR* file that you receive when you purchase *WORDSTAR* is WS.COM. That's why this filename is the assumed name, and you can simply press the Enter key to select this name.

There are occasions, however, when you may choose to

■■HE WORDSTAR CONFIGURATOR IS DESIGNED TO BE USED WITH WORDSTAR RELEASES IN THE 3.2 SERIES ONLY.

rename the WS.COM file. For instance, you might want to create two copies of *WORDSTAR*, choosing the file name WSDOC. COM for use with document files and WSNON.COM for use with non-document files (e.g., programs). With this arrangement you would invoke *WORD-STAR* with the command WSDOC or WSNON as appropriate, rather than the usual WS. You can customize the versions with different settings, but both will still be on the same disk and share the same *WORDSTAR* overlay files. If you choose to rename your *WORDSTAR* file, you must make a copy of the WS.COM file with the new name *before* starting the *WORDSTAR CONFIGURATOR*. For example, by executing the command

COPY WS.COM WSDOC.COM ↵
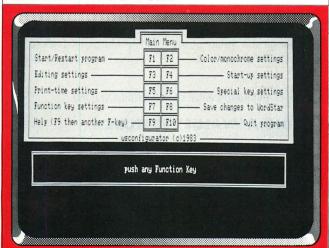
before starting the *Wordstar CONFIGURATOR,* you could now reply with a filename of

WSDOC ↵

to configure your version of *WORDSTAR* for editing documents.

Once you've entered the file name, you'll be asked for the drive with the *WORDSTAR* file. Enter the correct letter. Load the disk with the *WORDSTAR* file in the appropriate drive. Then push any key. A message will appear that the file is being opened, followed by a request to choose any function key in the Main Menu.

HERE ARE OCCASIONS WHEN YOU MAY CHOOSE TO RENAME THE WS.COM FILE.

GENERAL PROCEDURE


```
                    Main Menu
Start/Restart program ──── F1  F2 ──── Color/monochrome settings
Editing settings ──────── F3  F4 ──────── Start-up settings
Print-time settings ──── F5  F6 ──── Special key settings
Function key settings ── F7  F8 ──── Save changes to WordStar
Help (F9 then another F-key) ── F9  F10 ──────── Quit program
          ───── wsconfigurator (c)1983 ─────

            push any Function Key
```

The Main Menu.

Changing any of the feature settings is a straightforward process. In the Main Menu all the editing feature categories are listed. Following the selection of a category, a submenu will appear on the screen. Once you've selected a submenu, you may then choose to change the status of any or all of the list-

ed *WORDSTAR* editing features.

Each feature in a submenu has a function key associated with it. For features with a status of ON or OFF the associated function key will switch the setting to the opposite status. For features allowing more than two setting values or choices, hitting the associated function key will cause the computer to cycle through those values or choices. For example, if the value setting is a number from 1 to 10, each stroke of the function key will increase the setting value by 1. Once you reach 10, the computer will cycle back to 1. When you complete all of the setting changes desired within a submenu, push:

`F10`

to return to the Main Menu (The only exception is the setting of function keys, discussed below.) You can now go on to another submenu, or begin the exit procedures.

SETTING AN ''ON/OFF'' FEATURE

With the Main Menu on your screen and your copy of *WORD-STAR* in the appropriate drive, you're ready to begin the configuration process. Let's try turning off right margin justification. You'll find that setting listed under ''Editing Settings.'' Push:

`F3`

When the editing submenu appears, the label associated with the F1 function key should read ''(ON) Justify Margins.'' Since this is an ON/OFF editing feature, pushing:

`F1`

will change the value of the ''Justify Margins'' feature to (OFF). Pushing:

`F1`

again will restore the value of this feature to (ON).

SETTING A ''VALUE'' FEATURE

If you want to change the current left margin setting, push:

`F3`

With each stroke of the F3 function key, the number to the left of the function title will change. When the number reaches the highest valid setting for the parameter, it cycles back to the minimum value.

The same method of setting feature values is used for all of the submenus except for the Monochrome/Color settings and the Function Key Settings.

HELP

There is a HELP feature available on every menu with the sole exception of the menu for function key settings (for this menu the help messages are on permanent display in the message box, located in the lower portion of the screen). You access the HELP feature the same way in all menus. First, press:

WHEN THE EDITING SUBMENU APPEARS, YOU'LL FIND THE FUNCTION KEYS HAVE NEW FEATURES ASSIGNED TO THEM.

F9

to invoke the HELP feature. The message box now instructs you to press any other function key to display additional information about the feature or feature category associated with that function key. For example, if you're at the Main Menu and want to know more about the feature category "Print-time Settings," press:

F9

followed by

F5

Alternatively if you're at the Print-time settings sub-menu, and want to know more about the "Page Offset" feature, press:

F9

followed by
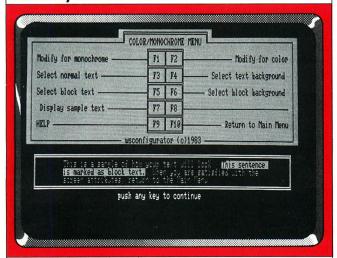
F6

Once you've invoked the HELP feature with F9, you can continue pressing other function keys, one after another, to obtain additional information about each associated feature or feature category. To leave HELP mode, simply press:

Esc

THE SAME METHOD OF SETTING FEATURE VALUES IS USED FOR ALL OF THE SUBMENUS EXCEPT FOR THE MONOCHROME/COLOR SETTINGS AND THE FUNCTION KEY SETTINGS.

COLOR/MONO SETTINGS

COLOR/MONOCHROME MENU

Modify for monochrome	F1	F2	Modify for color
Select normal text	F3	F4	Select text background
Select block text	F5	F6	Select block background
Display sample text	F7	F8	
HELP	F9	F10	Return to Main Menu

wsconfigurator (c)1983

This is a sample of how your text will look   this sentence is marked as block text. When you are satisfied with the screen attributes return to the Main Menu.

push any key to continue

The Color/Mono Submenu—sample display requested.

To modify the monochrome or color display patterns used by *WORDSTAR* you must start at the Main Menu. From there, push:

F2

By default, you will be ready to alter the settings for whichever mode, monochrome or color, you have been working in.

Note that the monochrome and color display settings are separate and independent. The *WORDSTAR CONFIGURATOR* lets you set each separately by allowing you to switch from the selection of monochrome display features to the selection of color display features and vice versa. The way to switch between the two is displayed on the submenu. To switch to the selection of monochrome features, push:

F1

To switch to color feature selection, push:

F2

In order to switch between monochrome and color display specification, you must have both adapters and both monitors in your hardware setup. Monochrome features can only be set on a monochrome monitor; color features only on a color monitor.

If you mistakenly command a switch to occur when there is no monitor, just hit the relevant switch key (F1 or F2) to return to the active monitor.

The submenu for Color/Monochrome settings allows you to choose text display, block text display, and the background display for each. At the bottom of the submenu screen the "Current text attributes" and "Current block attributes" are on display, in those very words. During the selection process these lines display the current display settings.

Selecting the display pattern is done much like the selection for a multi-value feature on other submenus. In monochrome display, text can be displayed as normal, high intensity, reverse video, or underlined. In the selection process you cycle through these choices, for normal and block text, by repeatedly pressing the F3 key or F5 key respectively. In monochrome mode, pressing the keys for background selection has the same effect as "foreground" selection.

With a color display, the foreground/background distinction is meaningful, so four different settings can be made (normal text foreground and background, block text foreground and background).

You can display the current monochrome or color settings at any time while in the Color/Monochrome Menu by pressing:

F7

The message box will present a sample of text. Press any key to continue.

FUNCTION KEY SETTINGS

The setting of function keys allows you to associate one of 18 different *WORDSTAR* commands with each function key. For

example, you can configure *WORDSTAR* so that any time you press function key F8 while in *WORDSTAR*, the cursor will move to the end of the file. In this way the function keys become powerful shorthand commands.

In the Function Key Submenu, the *WORDSTAR* command currently available for assignment is displayed below the message box, at the bottom of your screen. The message box explains that you must press the Space Bar to cycle through the 18 *WORDSTAR* commands available for assignment. Each time you press the Space Bar, a new command appears at the bottom of your screen. When you see a *WORDSTAR* command you would like to assign to a function key, simply press the appropriate function key while that command is on display. That *WORDSTAR* command will then appear on the submenu next to the function key you've just pressed. The assignment is made.

There is no HELP feature here since function key F9 has to be available for command assignment like the others. Similarly, function key F10 is not used to return to the Main Menu. When you finish assigning *WORDSTAR* commands to function keys, press:

| Esc |

to return to the Main Menu.

SAVING THE CONFIGURATION AND EXITING
When you're finished entering all your configuration settings, you must return to the Main Menu to save these new settings. Once there, push:

| F8 |

The prompt will ask you whether or not you want to continue with the save procedure. If you wish to continue, push:

| ↵ |

The changes will be saved, and you'll be returned to the Main Menu. If you decide to cancel the saving operation, hit any other key and you'll be returned to the Main Menu. If you complete the save procedure, the new version of *WORDSTAR* will be written on the disk. If you choose to quit, none of your new settings will be installed.

Once you've saved your changes, or if you simply want to exit the *WORDSTAR CONFIGURATOR*, push:

| F10 |

If you haven't saved your new settings, the prompt will ask you to confirm that you do not want them saved. To exit, push:

| ↵ |

If you decide not to exit, push any other key. When you exit, you will be left in Advanced BASIC.

Before putting your new *WORDSTAR* to use, you should test it thoroughly, paying special attention to the performance of the settings you've just modified.

YOU MUST RETURN TO THE MAIN MENU TO SAVE THESE NEW SETTINGS.

PROBLEM RECOVERY

There really is not a great deal to say about problem recovery with *PC Disk Magazine*. If you use this software on the right equipment running the appropriate system software, as outlined in the Technical Preface, you should experience no problems. Nevertheless, a few comments may resolve some more obvious difficulties.

Any BASIC program can be interrupted at any time by pressing:

> **Ctrl** **Scroll Lock**

If you do not see the OK message immediately, indicating that you are back in BASIC, press these keys again. This is a rather drastic but effective way of regaining control of the computer. You won't damage any of the programs in this way, since they're still intact on the diskette. However, you will lose any data you entered while the program was running.

If you interrupt a program you may find that the function keys no longer perform as they had before starting the program. This is because many *PC Disk Magazine* programs reset the function keys during execution, then restore the original settings upon completion. An interrupt causes an abnormal termination of a program, so the function keys are not restored. To correct this situation, simply exit from BASIC and then return to BASIC.

You may find at times that the cursor control keys are not working as they should. This is because the keys are not in cursor control mode. The key that switches these keys between numeric mode and cursor control mode is the Num Lock key. So to restore the keys to cursor control mode press:

> **Num Lock**
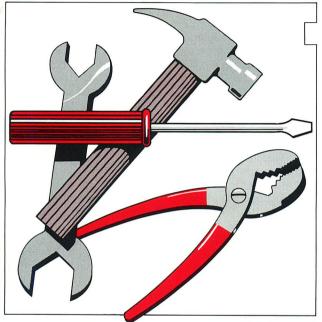
If you try to send something to the printer when there is no printer, or when the printer is off or offline, you will hang the system. The computer will just sit there and will not respond to any keys pressed. After a few seconds you may get a BASIC error message indicating that the device was unavailable. The program that was running has been aborted, and you will be left in BASIC. If the computer does not put out any message, but just remains hung, you will have to say goodbye to whatever you were doing and re-boot your system.

Though we hope you will never need it, if you should find a "bug" in a *PC Disk Magazine* program, the address to write to is:

PC Disk Magazine
Dept. 741
One Park Avenue
New York, N.Y. 10016

BASIC PROGRAM EDITOR
By Richard V. Smith

Special Requirements: None
Files Used: BPE.BAS

When writing a program in BASIC, you've no doubt run into situations where you've come up with a new idea to add to what you've already written. Or you would like to go back and correct errors, eliminate the "bugs" and review some portion of the program. But, as you well know, the longer the program, the more difficult it is to find the part of the program you want. The BASIC PROGRAM EDITOR (BPE) *helps you rapidly find your way through your program and allows you both to edit and test the program along the way.*

BPE has two modes of operation, EDIT mode and ACTION mode. In ACTION mode you can run programs, save programs, list files, kill files, turn program tracing on and off, all at the touch of a function key. EDIT mode works by breaking your program down into a series of "pages" approximately 20 lines each. The function keys in turn are assigned commands that let you get around your BASIC program with a single keystroke. You can cause the first page or the last

page or your program to be displayed. Or you can ask for the page that contains some specific line number of interest to you. BPE *lets you switch back and forth between ACTION and EDIT modes at the touch of a key.*

BACKGROUND

BPE is actually itself a BASIC program which occupies lines 0 to 99. It works by dynamically assigning different Direct BASIC commands to the different function keys. Thus when you press a function key you cause the associated command to be executed. This approach is just like the essential design of IBM's BASIC, wherein the function keys have, by default, a set of commands associated with them when you start BASIC. *BPE* expands and lends flexibility to this built-in command shorthand by varying, in a systematic and useful way, the command associated with each function key.

From a practical standpoint you need only be concerned with what each function key does in EDIT mode and ACTION mode. However, understanding that *BPE* is a BASIC program, which runs as you use it on your own program, clarifies some aspects of its use. For example, *BPE* is resident in BASIC at the same time as the program you are editing. Since *BPE* occupies line 0 to 99, any program to be edited must begin at line 100. Why 100? Because to run the program being edited, *BPE* does an automatic GOTO line 100. Hence, there must be a line # 100. Additionally, the function keys can only be assigned commands up to a certain length. Therefore, *BPE* cannot work on programs with line numbers of more than 4 digits.

Other consequences of *BPE*'s design will be explained in the following usage instructions. Let's start it up and explore what it can do.

START-UP

Load Advanced BASIC into your PC by typing:

BASICA ⏎

There are three different ways to initiate the use of *BPE*, depending upon the status of the program you intend to use it with.

If you want to create a new program and have *BPE* available for editing, put the *PC Disk Magazine* diskette in the default drive and type:

MERGE "BPE ⏎

RUN 1 ⏎

(Remember to begin entering your program with line # 100.)

If you want to work further on a program that you previously saved with *BPE* as part of it, put the diskette with that program in the default drive and type:

LOAD *"programname* ⏎

RUN 1 ⏎

The third case is when you want to use *BPE* on a program

you've previously created. This will be the most common circumstance when you first start using *BPE*. What you need to do is merge *BPE* into the currently existing program. Put the diskette containing the program to be edited in the default drive and type:

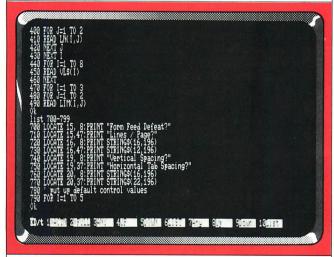<p style="color:red; font-weight:bold; font-size:large;">LOAD <i>"programname</i> ↵</p>

<p style="color:red; font-weight:bold; font-size:large;">RENUM 100 ↵</p>

This program is now in memory, and starts on line 100, Replace this program diskette with your *PC Disk Magazine* diskette and type:

<p style="color:red; font-weight:bold; font-size:large;">MERGE "BPE ↵</p>

<p style="color:red; font-weight:bold; font-size:large;">RUN 1 ↵</p>

In all three cases the last command initiates execution of *BPE*. You begin in EDIT mode, as indicated by the first word on the bottom line of your screen. Following the mode indicator are the values for each of the function keys.

EDIT MODE

```
400 FOR J=1 TO 2
410 READ LNK(I,J)
420 NEXT J
430 NEXT I
440 FOR I=1 TO 8
450 READ VL$(I)
460 NEXT
470 FOR I=1 TO 3
480 FOR J=1 TO 2
490 READ LNK(I,J)
Ok
list 700-799
700 LOCATE 15, 8:PRINT "Form Feed Defeat?"
710 LOCATE 15,47:PRINT "Lines / Page?"
720 LOCATE 16, 8:PRINT STRING$(16,196)
730 LOCATE 16,47:PRINT STRING$(12,196)
740 LOCATE 19, 8:PRINT "Vertical Spacing?"
750 LOCATE 19,37:PRINT "Horizontal Tab Spacing?"
760 LOCATE 20, 8:PRINT STRING$(16,196)
770 LOCATE 20,37:PRINT STRING$(22,196)
780 ' put up default control values
790 FOR I=1 TO 5
Ok
ED/t 1    2    3    4    5    6    7    8    9    10
```

A split screen display—two separate program sections.

YOU WORK IN EDIT MODE BY FIRST LOCATING A PAGE, AND THEN DISPLAYING IT.

Some brief background on EDIT mode will provide the context for explaining these keys.

As stated in the introduction, EDIT mode breaks up your program into pages of approximately 20 lines each (the average number of BASIC program lines that will fit on a single screen). You work in EDIT mode by first locating a page, and then displaying it. The act of locating a page does *not* automatically cause the page to be displayed. Rather, it sets the display function to that page. The display function, when invoked, lists the currently located page on the screen. Thus, there are several EDIT mode keys for locating pages, which set the current page for the display keys.

Keys and their meanings are as follows:

F1 ACTN

Switches to ACTION mode.

F2 HALF

Splits the screen to allow two separate half pages to be displayed simultaneously. Changes function keys F3 to F6 to control display for one half page, F7 to F10 to control display for the other half page. The bottom of the screen will be labeled ED/t whenever the half page edit commands are in effect. When in half page edit mode, pressing function key F2 restores full page edit mode.

F3 ANY

Prompts you to enter any line number for display, then sets the LIST (F6) command to display the page containing that line when pressed.

F4 UP

Sets the LIST (F6) command to display the page preceding the current page when pressed (i.e. the page one closer to the beginning of the program).

F5 DOWN

Reverse of F4.

F6 LIST

Displays the page of lines currently located.

F7 TOP

Sets the LIST (F6) command to display the first page of the program when pressed.

F8 RENUM

Renumbers the program beginning with line 100 (so *BPE* is not renumbered as well) in increments of 10.

F9 BOTM

Locates the last page of your program and sets the LIST (F6) command to display that page when pressed.

F10 List+

Like F6, displays a page of lines from the program, but offset half a page from the currently located page. This key is particularly helpful when the lines you want to see are partly on the page displayed by LIST (F6) and partly on the next page.

In brief, function keys F3, F4, F5, F7, and F9 perform page locating functions, while F6 and F10 perform display functions. In practice you will quickly develop the reflex of pressing F6 or F10 immediately after a locate function to display what has been found.

With *BPE,* all of BASIC's standard, full-screen editing facilities are available for detail editing. So when you have a page of program lines on your screen to modify, use all the familiar

cursor control, insert, delete and other BASIC editing capa-
bilities as usual.

EDIT POINTERS
Three brief comments should expedite your use of *BPE*'s
EDIT mode. First, some editing functions, F8 and F9, occur in
two steps. You must press the same key a second time, when
you are told to do so, in order to complete the operation.

Second, the "bottom" function, F9, works by scrolling
through your entire program, beginning with the last line of
the current page, until the end of the program is reached. If
you're near the top of a long program, this can take a while.
Therefore before you do a "locate bottom", do a "locate
any" of a line number you know to be near the end of your
program. A following "locate bottom" function will then get to
the bottom much faster.

The third comment concerns *BPE*'s display page length of
20 lines. If your BASIC program lines span more than one
screen display line, you may find that the first lines of a *BPE*
page scroll off the top of your screen when the page is dis-
played. You can correct this by making a change to *BPE*
itself.

In lines 1 to 9 of *BPE*, all the parameters used in *BPE* EDIT
mode are established. The first part of a typical line appears
as follows:

VIEW.% = 1: BEGIN.% = 100: INCR.% = 10:
PSIZE.% = 20:

The variable PSIZE.% sets the page size in number of pro-
gram lines. *BPE* program line #1 sets this parameter for full-
page display; line #4 sets it for half-page display, invoked
with F6; and line #7 sets it for half-page display, invoked with
F10. Therefore to adjust the lines per page, in both full and
half-page display, edit lines 1, 4, and 7, and reduce the value
assigned to PSIZE.%.

(*Programmer's Note*: three parameter lines fully define a
run-time version of *BPE*. *BPE* has three built-in versions.
Lines 1, 4, and 7 define one set of parameters, activated with
the command RUN 1. Lines 2, 5 and 8 are another, activated
with RUN 2. Lastly, lines 3, 6, and 9 are a third, activated with
RUN 3. Other parameters in these lines you can change are
BEGIN.% (starting line number of user program) and
INCR.% (line number increment). These two variables
should have the same setting in all three associated parame-
ter lines. Thus you have three different versions of *BPE* avail-
able simultaneously with different RUN startup commands.)

ACTION MODE
The ACTION mode function key commands are, for the most
part, the standard BASIC assignments. And they operate just
as they do in standard BASIC. One group of keys is useful for
working with your files:

F3 (LOAD), F4 (SAVE), F8 (KILL), F9 (FILES), F10 (MERGE).

**IN
LINES 1 TO
9 OF *BPE*,
ALL THE
PARAMETERS
USED IN *BPE*
EDIT MODE
ARE
ESTABLISHED.**

Note that the use of F3 (LOAD) will wipe out whatever is currently in BASIC, including *BPE*.

The other group of ACTION mode keys are useful when you are testing changes you have made to your program:

F2 (RUN), F5 (CONT), F6 (PRINT), F7 (TRACE).

These keys also function as they do in standard BASIC. Hence you would invoke execution of the program being edited by pressing:

`F2`

The program will run as if *BPE* were not there at all. When the program completes, or if you break its execution, you can restart *BPE* with the command.

RUN 1 `↵`

You may have noted that ACTION key F7 (TRACE) is not in fact a standard BASIC command. In *BPE* ACTION mode, this key lets you change the commands associated with function keys F7, F8 and F10. When you first press F7, the "trace on" (TRON) command becomes associated with F7, and "trace off" (TROFF) with F8. This puts program tracing at your disposal. In addition F10 becomes DELET. This is not a BASIC command. Rather, it allows you to delete *BPE* from your BASIC work area before saving your program. We will discuss this further in a moment. These keys, F7, F8 and F10, are restored to their original values every time you enter ACTION mode. Hence to restore them after being changed, just press F1 twice (once to go to EDIT mode, again to re-enter ACTION mode.)

EXITING

Once you've finished editing, you may save your program with or without *BPE*. If you want to save a little space on your diskette you can eliminate *BPE* before saving your program. Most likely you will do this only when you are not expecting to edit your program any further. First enter ACTION mode and press:

`F7`

Then press:

`F10`

When you get the message "Delete BPE?" answer with a "Y". A yes answer will delete lines 0 to 99, returning the function keys to the standard settings as given in your BASIC manual. To save your file, type:
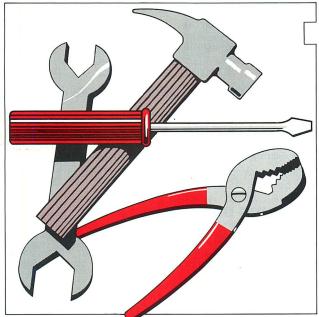
SAVE *"yourfile* `↵`

The advantage of saving *BPE* with your program is that it is then immediately available for use the next time you load your program into BASIC—no merging is necessary. To save your program with *BPE*, all you need to do while in *BPE* is type:

SAVE *"yourfile* `↵`

THE PERPETUAL CALENDAR
By Morris Effron

Special Requirements: None (printer optional).
Files Used: PERPCAL.BAS.

What day of the week were you born? How many days have you been alive? What was the calendar for the month you were born? You don't know? Use THE PERPETUAL CALEN-DAR *to find out.*

With THE PERPETUAL CALENDAR *you can find the day of the week for any date from January 1, 1800 to December 31, 2800; you can determine the number of days between any two dates in this time range; and you can print the calendar for any month within these years. You simply select which of these three items you want to know, type in the relevant date(s), and you have the results immediately.*

In case you don't have unbounded interest in the calendrical details of your life or those of others, THE PERPETUAL

CALENDAR *offers more. It has been programmed so that you can extract the "date validation" and "elapsed days" sub-routines and include them in programs of your own. Thus, any time you have a programming need for processing based on the day of the week, or days between two dates, don't re-invent the wheel—use* THE PERPETUAL CALENDAR.

START-UP

To start *THE PERPETUAL CALENDAR,* first load Advanced BASIC into your PC by typing:

BASICA ↵

Then put the *PC Disk Magazine* diskette in the default drive and type:

RUN "PERPCAL ↵

You are now presented with the three-item menu of activities for *THE PERPETUAL CALENDAR.* Type in the number of the activity you would like to perform. (You need only press the number itself; the Enter key is not needed.)

ENTERING DATES

Each of the activities will first ask you for a date. For the computation of weekday or elapsed days, dates should be entered in the form Month # / Day # / 4-Digit Year. For example, May 16, 1865 should be entered as

5/16/1865 ↵
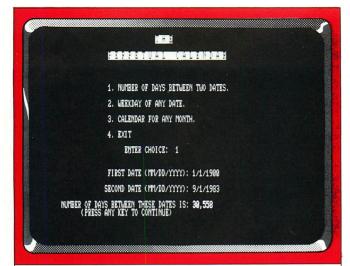
(Don't forget to type in the slashes.) For the date of a calendar, the day of the month is not necessary, so the date format is abbreviated to Month # / 4-Digit Year. You will be asked to enter two dates for the elapsed days activity. You can enter the dates in any order. The computer will determine which is the earlier and which the later. Only one date is necessary for the other two activities.

EXECUTION

Once you supply the dates, the computer spins the Great Mandala and gives you an answer immediately. If you have chosen to print a calendar, the computer pauses until you press a key to indicate that printing should begin. When the activity is completed, and the result printed or displayed, you are asked to press any key to continue. Pressing a key causes you to return to the first prompt for the activity you are in, allowing you to repeat the activity for different dates. For example, you select the "Weekday of Any Date" activity and enter 12/7/1941. The computer tells you that December 7, 1941 was a Sunday, and prompts you to continue by pressing any key. When you do so, you are returned to the prompt for the date. You can now enter another date for which you wish to know the day of the week.

▌▛▜RESSING A KEY CAUSES YOU TO RETURN TO THE FIRST PROMPT FOR THE ACTIVITY YOU ARE IN.

```
                    ┌──┐
          █████████████  █████████████

          1. NUMBER OF DAYS BETWEEN TWO DATES.

          2. WEEKDAY OF ANY DATE.

          3. CALENDAR FOR ANY MONTH.

          4. EXIT

              ENTER CHOICE:  1


          FIRST DATE (MM/DD/YYYY): 1/1/1900

          SECOND DATE (MM/DD/YYYY): 9/1/1983

     NUMBER OF DAYS BETWEEN THESE DATES IS: 30,558
             (PRESS ANY KEY TO CONTINUE)
```

Sample execution—the number of days between two dates.

When you want to exit from an activity, press:

↵

by itself as the response to the first prompt within an activity. This initial "null" response will send you back to the Main Menu so you can select another activity. If you make a mistake in your selection of an activity, just press:

↵

in response to the activity's first question to return to the Main Menu and reselect. Choice four on the Main Menu allows you to exit from the program and leaves you in BASIC.

THE SUBROUTINES

The two key subroutines of *THE PERPETUAL CALENDAR* are the "date validator" and the "elapsed days calculator." The former is lines 9100-9190. The latter is lines 9200-9340.

The date validator takes the character string in the variable ADATE$, and verifies that it is in the form MM/DD/YYYY. It uses the flag OKD to let the main program know if the date is valid (if OKD is 0 the date is no good, otherwise it's okay). In the process of date validation, three integer variables D,M, and Y, are assigned the numeric day, month, and year portions, respectively, of the string ADATE$. In addition the variable LP is set to true if the year of this date is a leap year, otherwise it's set to false.

The "elapsed days calculator" uses dates that have already been broken into their numeric day, month, and year components by the date validator. The components for one date are in the variables D1, M1, and Y1; for the other date D2, M2, and Y2 are used. The elapsed days calculator begins by determining which is the earlier date, and then com-

THIS INITIAL "NULL" RESPONSE WILL SEND YOU BACK TO THE MAIN MENU SO YOU CAN SELECT ANOTHER ACTIVITY.

THE TWO KEY SUBROUTINES OF THE PERPETUAL CALENDAR ARE THE "DATE VALIDATOR" AND THE "ELAPSED DAYS CALCULATOR."

putes the number of days from the earlier to the later date and puts this result in the single precision variable TDS.
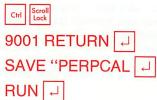
Both subroutines make use of the array DS, which is a 12-element array containing the number of days in each month of the year. The need for this information to verify dates and compute elapsed days is obvious. In addition, the elapsed days calculator makes use of a 7 element array NLP, which contains a list of centenary years that are not leap years. This list is needed to adjust the total elapsed days downward if any of these years lie between the two end dates in question. This is not an exhaustive list of such years; it contains only those that fall between 1800 and 2800. Both these reference arrays, DS and NLP, are dimensioned and filled in the initialization subroutine, lines 1000-1030. Hence, you should copy this initialization section into your program when using either the date validator or elapsed days calculator in your own application.

JANUARY 2000						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29
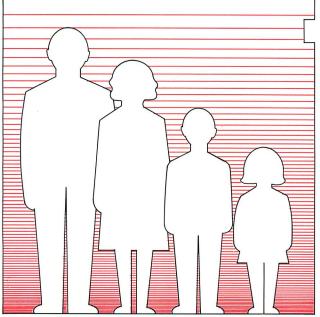
Sample calendar—start the century right.

THE MUSIC

If you prefer to be spared Rod Serling's introduction to the program every time you run it, just halt execution, enter one line, save the result, and then restart. The sequence to key is as follows:

Ctrl   Scroll Lock

9001 RETURN ↵

SAVE "PERPCAL ↵

RUN ↵

HOME/PERSONAL

PERSONAL CASH FLOW MANAGER

By Gary Oppenheimer

Special Requirements: None
Files Used: CASH.BAS
          CASH-RPT.BAS
          ACCOUNT.CDE
          CHARGE.CDE
          TRANS.DAT

To help you organize, analyze and verify all of your checking account activity, we introduce Part I of the PERSONAL CASH FLOW MANAGER. *This system lets you maintain a complete record of all money deposited to and withdrawn from each of your checking accounts. In addition to a record of all individual transactions, and an associated running account balance, a ledger of income and expense categories that you create lets you monitor your personal cash flow by transaction type.*

Three main files provide the underlying structure of the PERSONAL CASH FLOW MANAGER. *The different checking accounts that you use are created and maintained in the Account File. The different income and expense categories by which you will classify all your transactions are created and maintained in the Charge Category File. These two files, Account and Charge Category, are the reference files of the system. They provide a financial framework to organize the information recorded in the third key file, the Transaction File.*

In this third file you make an entry for every credit or debit to each of your checking accounts. In the process of entering a transaction you specify the account to which it applies, and the type of transaction that it is. These two pieces of information tie every transaction to an account in the Account File, and an income/expense category in the Charge Category File. By identifying each transaction in this way, at the time it is entered, all three files become interlocked in a way that makes record keeping, cash flow analysis and account reconciliation a breeze.

In operation, all activity within the PERSONAL CASH FLOW MANAGER *originates with a choice from the 7 function Main Menu. From the Main Menu you'll select "Account Maintenance" to create your checking accounts and obtain current balance information about them. Selecting "Charge Categories Maintenance" allows you to do the same for your income and expense categories. Once your account and charge category files have been created, choose "Transaction Entry & Maintenance" to add new transactions and modify existing ones. When it comes time to reconcile your checking account statement(s), select "Transaction Reconciliation" and verify each transaction for the account. Display or print the financial information present in any one of the three central files through a special submenu for this purpose. Or review the contents of all three files simultaneously with the "Integrated File Display." All the facilities to enter, maintain and retrieve your checking account cash flow activity are at your fingertips with Part I of the* PERSONAL CASH FLOW MANAGER.

START-UP

In order to use the *PERSONAL CASH FLOW MANAGER*, you must transfer the necessary programs from the *PC Disk Magazine* diskette to a diskette with room for the three key data files. To do so, put your *PC Disk Magazine* diskette in the default drive and type:

COPY CASH*.* B: ↵

where B: is the drive holding a formatted work diskette. The two programs comprising the *PERSONAL CASH FLOW MANAGER*, CASH.BAS and CASH-RPT.BAS, will then be copied over.

To start the *PERSONAL CASH FLOW MANAGER,* load Advanced BASIC into your PC by typing:

BASICA ↵

then put your working copy diskette in the default drive and type:

THE COMPUTER WILL AUTOMATICALLY CREATE THE THREE NEW FILES YOU WILL BE USING.

RUN "CASH ⏎

For the first use of this program, the computer will automatically allocate space for the three new files you will be using: Accounts, Charge Categories, and Transactions. It will tell you it is doing so as it creates them. In future start-ups, the first thing you'll see is the title page, followed by the 7 function "Main Menu".

ACCOUNT MAINTENANCE

The first thing to do is set up your Account File—the file in which your checking account(s) will be maintained. Account File Maintenance is selection 2 on the Main Menu, so press:

2

An Account Maintenance screen will appear, listing your current records in the right hand column. The left hand portion of the screen is used to enter data. At the bottom of the screen will appear a five function submenu. The submenu includes: Inquiry, Add Record, Alter Record, Delete Record and Go To Main Menu.

    Since there is nothing in your account file when you first begin, you'll have to add information. Push:

> F2

Prompts will then ask you to enter the account category number, and account category name. For example, let's number this account 1. Type:

1 ⏎

And call the account CITI CHECK for Citibank Checking. Type:

CITI CHECK ⏎

If you fill a field entirely, the computer will move automatically to the next line. In that event, you will not have to press the Enter key following an entry. Directly underneath the account name will be listed the current balance for the account. Since you have yet to enter any transactions, the balance will be .00

    If you would like to enter another checking account, just enter the new account category number and name. When you've completed your additions, or wish to exit the add procedure, simply push:

> Esc

to return to the Account Maintenance submenu. You may then choose another function from the submenu. For example, to look at the new account, select "Inquiry". Push:

> F1

Enter the number of the account you wish to review, and the account name and current balance for that account will appear on your screen along with a new submenu:

THE ACCOUNT NAME AND CURRENT BALANCE FOR THAT ACCOUNT WILL APPEAR ON YOUR SCREEN.

F1 prior record F2 next record F3 *return to menu.*

In inquiry mode you have the ability to "scroll" backward and forward through the file. That is to say that once you have located an entry in the file, you can display every preceding entry in sequence back to the beginning of the file, by repeatedly pressing:

F1

You can display all subsequent entries through to the end of the file (i.e., the last entry) by repeatedly pressing:

F2

To exit the inquiry function, push:

F4

The previous 5 category submenu will reappear and you can either choose to make additional changes, or return to the Main Menu.

CHARGE CATEGORY MAINTENANCE

Let's go back to the Main Menu and set up the Charge Category file. Push:

F5

When the Main Menu reappears, type:

1

The Charge Category Maintenance screen will appear in the same format and with the same function key submenu as the Account Maintenance screen. Let's add a charge category. Push:

F2

You'll be asked to enter a charge category number and name. For example, enter 1 for the number and call the category "Supplies". Following these entries you'll be asked to identify the charge category as a credit or debit.

When a charge category is a credit, transactions assigned to that category get added to the affected account balance. Debit charge categories have the opposite effect on the acccount file. Another way of thinking about it is that credit charge categories represent money in, debit categories are money out. Thus "Salary" is a credit charge category, while "Supplies" is a debit category, because it's money you pay out. Since "Supplies" is a debit category, push:

D

The entry is now complete, and the prompt returns to the first line for an addition, in anticipation of adding another charge category. We can continue adding categories, then press:

Esc

IF AT ANY TIME DURING THIS PROCEDURE OR ANY OTHER PROCEDURE YOU WOULD LIKE TO EXIT, JUST PUSH THE ESCAPE KEY.

at any time to exit add mode and return to the 5 category submenu.

Again, from the submenu you can choose to add, delete, inquire, alter, or return to the Main Menu.

Let's try a delete. Push:

F4

You'll then be asked to choose the category you would like to delete. Enter the category number. A four function submenu will appear on the bottom of your screen. If you would like to delete the category currently displayed, push:

F3

If you would like to go back one record or forward one record in the file, press:

F1 or F2

respectively. Nothing is deleted when you move backward or forward in the file. The activity is the same as the scrolling in inquiry mode. You simply change the entry currently displayed, and thereby the entry available for deletion.

When you do delete a charge category, the prompt returns to the first line, ready for another deletion.

If at any time during this procedure or any other procedure you would like to exit, just push the ESCAPE key:

Esc

The "Alter Record" key allows you to go back and change an entry. For example, if you misspelled "Income", push:

F3

Enter the category number where the change is to be made. Push:

↵

If you still want to alter this record, respond to the prompt "Enter desired function for inquiry scan" by pushing:

F3

The next prompt will ask you to enter the field number adjacent to the line where the change is to be made. Enter the number, and then type in the change.

If you would like to make further alterations, you may, if not push the ESCAPE Key to exit to the submenu. Then push F5 to return to the Main Menu.

THE "ALTER RECORD" KEYS ALLOW YOU TO GO BACK AND CHANGE AN ENTRY.

TRANSACTION MAINTENANCE

```
00:13:55          TRANSACTION ENTRY & MAINTENANCE          Jan-01-1980

(add)

        1. Reference what Account        1    CHECKING
        2. Transaction Date (MM/DD/YY)   09/01/83
        3. Check/transaction number      134
        4. Transaction Amount            500.00
        5. Charge Category               1    SALARY
        6. Payee/Payer                   IBM Corp.
        7. Transaction Memo              Monthly Retainer
        8. Reconciled (Y/N)              N




Enter -either Y or N -fully entered -press(RETURN)for default

                                                        help
```

A completed transaction entry.

Now you're ready to enter transactions. Select activity 3 from the Main Menu. The Transaction Entry screen will appear with the same function key submenu as the two previous maintenance activities. Push:

F2

to add a transaction record.

You'll be asked to enter the number of the Account which this transaction should credit or debit. In the current version of the *CASH FLOW MANAGER* all transactions are either money into (credits) or money out of (debits) a checking account. When the account number is entered, the name of the account will appear immediately to the right. Enter the date of the transaction, check or transaction number, and the transaction amount. Next, enter the charge category number. For example, if this is income, enter 2—the number we assigned previously to this category. And finally you're asked to enter the name of the Payee/Payer, and a Transaction Memo.

Below the transaction memo the word "Reconciled" will appear with a flashing "N" in the right hand column. Normally you'll enter "N" for no unless you are simultaneously entering and reconciling a transaction, in which case you will enter a "Y".

If you make an error while entering transaction information, push:

Esc

and you'll be taken back to step one to reenter transaction data.

When you've completed your transaction entry, the transaction will be posted to your Account and Charge Category

files, so that the affected balances will be updated automatically.

You've probably noticed that the entry and maintenance procedures are the same across all three data files: accounts, charge categories and transactions. The actions that are available, and the keys used to invoke those actions, are the same for all three files. Therefore, take the time to experiment with the different actions and associated key sequences. This will greatly enhance the usefulness of the *PERSONAL CASH FLOW MANAGER* to you.

RECONCILIATION

With the *PERSONAL CASH FLOW MANAGER,* reconciliation is a very simple procedure. Select 4 from the Main Menu, and a reconciliation screen will appear. Enter the number of the account you want to reconcile and the first transaction in that account will appear. Notice the "Y" is flashing on line 8. To reconcile this transaction push:

[↵]

If you do not want this transaction reconciled, push:

N

The next transaction will automatically appear. Continue to reconcile until all transactions have been viewed. If you would like to exit this procedure before completing reconciliation of all transactions, you can exit by pushing:

[Esc]

DISPLAY/PRINT

Whenever you want to look at or print your transaction, account or charge category files, select the Printed Report And Screen Inquiry function from the Main Menu. Once selected, a seven function display menu will appear offering three inquiry display requests, three print requests and an option to return to the main menu.

THE TRANSACTION REPORT DISPLAYS ALL TRANSACTIONS, SUBTOTALS BY ACCOUNT, AND SUBTOTALS BY CHARGE CATEGORY.

```
                    TRANANSACTION REPORT
01-01-1980                                              PAGE 1
  DATE     TRANS # AMOUNT CATEGORY    PAYEE/PAYER      MEMO           REC


                       ( 1)CHEM CHECK
20-Jun-83     0  1500.00 ROYALTIES  I. M. Publishers  Advance on book        N
20-Jun-83     1   750.76 SALARY     Paycheck for May 30 Union fees taken      N
20-Jun-83  1005    80.00 HOUSE INS. Aetna Ins. Co.    Includes fire insur.   N
20-Jun-83  1006   200.00 APPLIANCES Acme Dept. Store  Air Conditioner        N
20-Jun-83  1007    66.00 ENTERTAIN  Star 4 Restaurant Mothers Day            N
20-Jun-83  1008    12.00 DRY CLNERS Best Cleaners                            N

                       ( 2)CITI CHECK
27-Jun-83     0  1567.75 WKEND WRK  Special Assignment                       N
01-Jul-83     1    30.00 MISC.      My wife           Curl Up & Dye beaut.   N
01-Jul-83     2    45.00 APPLIANCES Apex Appliance    Smoke Alarm            N
01-Jul-83     3   600.00 ROYALTIES  VERY BIG CORP.                           N
05-Jul-83     3    50.00 ENTERTAIN  Ticketron         Concert                N

                       ( 3)MONEY MKT
22-Jun-83     1  1000.00 ROYALTIES  VERY BIG CORP.    MORE TO COME           N
25-Jun-83     2   650.00 ROYALTIES  I. M. Publishers  From John Doe          N
27-Jun-83     0   537.90 CPTAL GAIN Sale of IBM                              N
05-Jul-83     2    30.00 TRAVEL     Rough Ride Bus Co.                        N
10-Jul-83     3    25.00 LIQUOR     Spirit Town       Beer for Weekend       N

                    SUBTOTALS BY ACCOUNT
01-01-1980                                              PAGE 2
           CODE      DESCRIPTION            TOTAL

             1       CHEM CHECK             2608.76
             2       CITI CHECK             2292.75
             3       MONEY MKT              2242.89
```

Let's have a look at the Charge Categories. Push:

1

A Charge Categories report will appear on your screen with four columns of information: code number, category name, category type (credit or debit) and a balance. A prompt will ask you to press any key for display of the next page, or if this is the final page, will return you to the Report/Inquiry Menu. Push:

3

for accounts display. The Accounts Report is similar to the Charge Categories report and provides you with the code number, name, and balance of each account. Once again, you're asked to hit any key to continue. When you return to the Report/Inquiry Menu, push:

5

▐▐ HE REPORT/ INQUIRY MENU LETS YOU PRINT REPORTS OF THE THREE CENTRAL FILES.

The Transaction Report displays three pages of information: a Transaction Report, Subtotals by Account, and Subtotals by Charge Category. The 6 columns of the Transaction Report are: date, transaction number, amount, category number, payee/payer, memo, and reconciled. Entries are grouped according to account number. To go to the next page, press any key. Subtotals By Account will appear on your screen, providing the account code, description of the account, and total money by account. The following screen displays Subtotals By Charge Category, and in addition to the three columns provided in the Accounts Category, the Charge Category includes columns for %Income and %Expenses.

For all selections in the Report/Inquiry Menu, you will be returned to that menu following the completion of each inquiry.
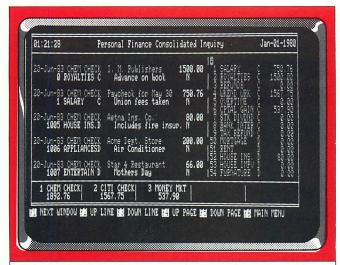
The three print selections in the Report/Inquiry Menu allow you to print reports of the charge category, account and transaction files.

For a complete look at all of the data you've stored in the *CASH FLOW MANAGER,* on one screen, push:

6

from the Main Menu.

The integrated file display

INTEGRATED DISPLAY

Following the selection of the Integrated File Display, the Personal Finance Consolidated Inquiry screen will appear. The screen is divided into three windows. The left hand window displays transactions, on the right the charge categories are displayed, and at the bottom of the screen the account(s) are listed. All three data groups are displayed with accompanying information.

Below the account window is a six function submenu that provides scroll capability. A 'smile' indicator, controlled by the F1 function key, notes which window the F2 through F5 function keys will currently operate on. The function keys F2 and F3 let you scroll the active window up one line and down one line respectively. Function keys F4 and F5 move the active window up and down a full window display at a time respectively.

Once you've completed your work on the *PERSONAL CASH FLOW MANAGER,* push:

7

from the Main Menu to exit the program.

U TILITIES & DIAGNOSTICS

DISK-MAP
By Peter Norton

DEL
3/18/84

Special Requirements: Two disk drives.
Files Used: DISKMAP.COM

If you've ever wondered exactly where on your diskette information is stored—where files and remaining free space are, where system information such as the directory, the File Allocation Table, and the "boot" record are located—DISKMAP will be a welcome addition to your software library.

DISKMAP is an element from the Norton Utilities, the widely praised library of DOS tools for the IBM PC. DISKMAP will display a complete map of the space utilization of your diskette. A different space diagram format is used for each of the four standard diskette formats: eight sector single-sided, nine sector single-sided, eight sector double-sided and nine sector double-sided. The space diagram illustrates the contents of all sectors of all 40 diskette tracks. Summary statis-

tics are also provided. DISKMAP *can produce a color display on systems with the color graphics adapter*.

START-UP

Using *DISKMAP* is simple. Enter the program's name, followed by the drive specification of the diskette drive you wish to map. For example:

<div align="center">

DISKMAP A ↵

</div>

If you leave off the drive specification, *DISKMAP* will default to the B Drive. The simplest way to use *DISKMAP* is to put your *PC Disk Magazine* diskette in your A Drive, and the diskette to be mapped in the B Drive. Then just type:

<div align="center">

DISKMAP ↵

</div>

The program will display the map of the diskette in the B Drive and end execution automatically.

The map screen of a nine-sector double-sided diskette.

THE DISK-MAP SCREEN

A summary of your diskette space usage appears on the top half of your map screen. This usage summary gives you a sector count and percent of total for each content category such as free space, normal files, system files and directories. The bottom half displays a map of the diskette itself with an accompanying legend. In addition to displaying used and free portions of your diskette, *DISKMAP* shows any part of the disk that is marked off as unusable due to formatting errors. Temporarily unavailable space and cross-linked files, although uncommon, are also pinpointed for you.

THE MAP ITSELF

A line between the usage summary and map itself tells you what kind of diskette is being mapped. The column headings of the map itself represent the 40 tracks of the diskette, numbered 0 to 39. For single-sided diskettes, sector numbers

(the map rows) are sequential (1 to 8, or 1 to 9). For double-sided diskettes, sectors are allocated in pairs, and the map reflects this fact. For eight sector double-sided diskettes the sector row labels are 1,3,5,7 for Side 0, and the same for Side 1. Each sector number actually denotes a pair of sectors, so that 1 denotes sectors 1 and 2, 3 denotes sectors 3 and 4, etc., for a total of eight sectors per track on each side of the diskette.

The same concept applies to the map of nine sector double-sided diskettes, but the ninth sector creates a twist. Side 0 still has sector pairs 1,3,5,7. The ninth sector of Side 0 is paired with the first sector of Side 1. Thus the sector pairs for Side 1 are listed as 2 (for 2 and 3) 4 (for 4 and 5) etc. The location of 9 (for the 9 and 1 pair) right between the two sides is an attempt to illustrate this unique pairing arrangement.

The accompanying map legend explains the type of information present in each sector. Every diskette, once formatted, has space allocated for a boot record, a File Allocation Table, and a Directory. The Directory contains an entry for every file on the diskette, composed of the filename and a pointer to its entry in the File Allocation Table. The File Allocation Table in turn contains a list of which sectors are used by each file on the diskette. "Hidden" files are commonly the two DOS operating system programs which the computer puts on a system start-up diskette. These programs do not show up in the DIR command; they are loaded by the computer to start DOS when you turn on the computer or do a system reset. The presence of locations that are "Temporarily Unavailable" (A) or under "Conflicting Allocation" (X) are usually an indication that a copy protection scheme is in effect on the diskette or that the diskette is damaged.

Since the display produced by *DISKMAP* consists entirely of printable characters, you can print a copy of the map with the PC's "Print Screen" facility,:

↑ **PrtSc ***

CALLING ALL PROGRAMMERS!!

If you have written software for the IBM PC that you feel would be of use or interest to others, *PC Disk Magazine* would like to know about it. Publishing is no longer just for poets and prosaists, but now it's for programmers too. Ask for our Software Submission Plan by writing to:

PC Disk Magazine
Dept. 732
One Park Avenue
New York, N.Y. 10016

MERGING THE CODE

To move a block of code from one BASIC program to another, you must first move the code to be inserted into an ASCII file. Then load the destination program into BASIC, and lastly MERGE the ASCII file into that program.

The procedure seems simple. The twist, however, is that if there are any matching line numbers in the ASCII file and the current BASIC program, these lines of the current BASIC file will be replaced when you MERGE. Therefore, before you create your ASCII file, you should first eliminate all the extraneous lines in the program with the DELETE command, so only the section of interest to you remains in BASIC. Then use the RENUMBER command to set new line numbers for this extract, line numbers which you know will not conflict with those in the destination program. After renumbering, do your SAVE to create the ASCII extract file. Then load your program into BASIC and MERGE the extract file in.

An example using the *"Perpetual Calendar"* in this issue may be helpful. When in BASIC, put the *PC Disk Magazine* diskette in the default drive and type:

LOAD "PERPCAL ⏎

As discussed in the article on the Perpetual Calendar, the three subroutines of interest are in lines 1000-1030, 9100-9190 and 9200-9340. So the next step is to delete all extraneous lines. Type:

DELETE 1-310 ⏎

DELETE 1031-9010 ⏎

DELETE 341-9520 ⏎

With the deletion done, renumber the extract with a starting line number well above any lines in the destination program. Type:

RENUM 10000 ⏎

Then save the extract to an ASCII file by typing:

SAVE *"somename"*, A ⏎

Lastly, load your program into BASIC, and merge in the extract file. Type:

LOAD *"yourfile* ⏎

MERGE *"somename"* ⏎

U
TILITIES & DIAGNOSTICS

IBM MATRIX PRINTER CONTROL
By Roxanne Katt

Special Requirements: IBM Matrix Printer or equivalent.
Files Used: PRINTCON.BAS

To simplify your printing, the IBM MATRIX PRINTER CON-
TROL *allows you to quickly set the eight printing features
common to all IBM Matrix Printers. You can experiment with
different printer settings until your printed output looks exact-
ly as you want.*

*You make your feature selections on a single screen. Some
features require a yes (Y) or no (N) setting, others require a
numeric value. You can keep changing the settings and trying
the result while still in the program. When you like what you
see, exit the program and those settings remain in effect until
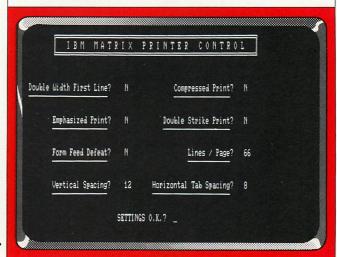you change them with a program or you reset your printer.*

START-UP
To start the *IBM MATRIX PRINTER CONTROL,* first make sure
that your printer is turned on and is online. Then load Ad-
vanced BASIC into your PC by typing:

BASICA ⏎

Then put the *PC Disk Magazine* diskette in your default drive and type:

RUN "PRINTCON ⏎

```
┌─────────────────────────────────────────────────┐
│      I B M   M A T R I X   P R I N T E R   C O N T R O L      │
└─────────────────────────────────────────────────┘

 Double Width First Line?   N        Compressed Print?   N


    Emphasized Print?   N      Double Strike Print?   N


    Form Feed Defeat?   N          Lines / Page?   66


    Vertical Spacing?   12    Horizontal Tab Spacing?   8


              SETTINGS O.K.?  _
```

A complete specification of printer feature settings.

YOUR SCREEN WILL DISPLAY THE EIGHT DIFFERENT PRINTING OPTIONS.

OPTIONS

The program begins by initializing the eight printer features to a set of default values. Once this is done, the control specification screen is displayed, showing the eight printer features with their current default settings. The first five features are Yes/No settings. A Yes (Y) setting activates the feature. The latter three call for a numeric value. The features and their meanings are as follows.

1. Double Width First Line—When activated, prints the very next line sent to the printer, and only that one line, in expanded width.

2. Compressed Print—When activated, reduces the size of the characters printed to allow 132 versus 80 characters in the same 8-inch page width.

3. Emphasized Print—When activated, prints boldface letters. Emphasized Print and Compressed Print are mutually exclusive. If both features are activated, Emphasized Print takes priority.

4. Double Strike Print—When activated, creates print very similar to Emphasized Print.

5. Form Feed Defeat—Only affects printer output containing top-of-page control characters (i.e., new page codes). When activated, will cause these control characters to be ignored so that continuous (unpaginated) printing results.

6. Vertical Spacing—Sets the spacing between lines, measured in 72nd's of an inch. Can be set from 1 ($\frac{1}{72}$")

to 85 ($^{85}/_{72}''$). 12 is normal, 24 double space, 36 triple space, etc.

7. Lines/Page—The printer keeps internal track of the number of lines printed since the last top-of-page performed. When another top-of-page control is received, the printer advances the paper a number of lines equal to the lines/page less the number of lines printed thus far on the page. Thus, the lines/page feature lets you adjust to different lengths of paper. Valid settings for lines/page are from 1 to 127. If there are no top-of-page controls in your transmission to the printer, this feature setting has no effect.

8. Horizontal Tabs—By default tab stops are set eight spaces apart (i.e., at columns 8, 16, 24, 32 . . .). The number you enter here will specify the interval between stops, starting from the column of the number entered (e.g., entering 10 would set tab stops at columns 10, 20, 30, 40 . . .). The program will automatically create as many tab stops as will fit in the width of the line (up to 80 or 132, depending on the Compressed Print setting). This feature will have no effect on your output unless there are tab control characters in the output stream.

EXECUTION

So much for the explanation of the features themselves. Your best bet to understand them is to experiment with the effect of different settings. The *IBM MATRIX PRINTER CONTROL* takes you through each of the eight features in turn. For all features, if you want to leave the current setting unchanged, just press:

↵

when the cursor is positioned at the beginning of the feature value. To set a YES/NO feature to YES you must type:

Y

in the field (no following Enter key is necessary). Typing any other character will set the feature to a NO value. For numeric features, only numbers will be accepted. All numeric entries must be concluded with the Enter key. Values above or below acceptable limits will restore the field to blanks and return the cursor to the beginning of the field for re-entry. No message appears.

Each time you go through the list of settings, the program will ask if the settings are okay. If you enter any character except Y for YES, you will return to the first feature setting to go through the list again. If you confirm that the settings are okay, you will be asked if you want to see three sample print lines. Answering Y for YES will produce three lines on your printer, and you will be asked again if the settings are okay. If you don't want any sample print, or you already know the settings are okay and you're ready to exit the program, then answer N for No to the sample lines question, and you will end execution of the *IBM MATRIX PRINTER CONTROL* program, with the latest printer settings in effect.

YOU'LL BE ASKED WHETHER OR NOT YOU WOULD LIKE TO SEE A TEST PATTERN.

SUBMISSION PROCEDURE

What sets *PC Disk Magazine* apart from most other publications is that we want and need your direct involvement. That's why we developed the "Software Submission Plan." If you're interested in submitting software you've developed either on your own or with others, let us know, and we'll send you the Submission Plan booklet. We would like to give you an outline of our Submission Plan here in order to stimulate your imagination and your interest.

The Software Submission Plan provides an opportunity for software authors to profit directly from their work. Under the plan, *PC Disk Magazine* pays every published author a royalty on every issue sold, which contains a copy of his or her software. Best of all, this opportunity comes without elaborate restrictions. Our desire is to license software for publication only for the disk magazine format.

To explore the considerable opportunities for publication in *PC Disk Magazine,* write to us and ask for a Software Submission Plan booklet. The address is:

PC Disk Magazine
Dept. 732
One Park Avenue
New York, NY 10016

Once you've received the Submission Plan, read it over carefully. If you feel your software fits the requirements set out in the plan, complete the enclosed Software Submission Agreement and return it to us. No program code or documentation should be sent along with the Submission Agreement.
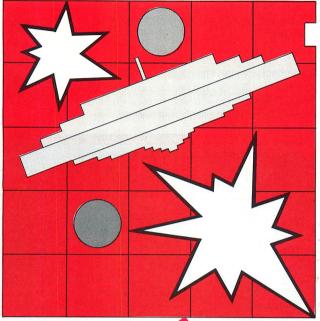
Following receipt of the Submission Agreement, the editors of *PC Disk Magazine* will evaluate the submission. At that point, we'll either indicate a lack of interest in the software or, if we are interested, we'll issue a submission authorization number and ask you to provide us with an executable copy of the program along with documentation on 5¼" diskettes. Again, no material should be sent until you receive a submission authorization number.

If we subsequently decide that we would like to publish the software in *PC Disk Magazine,* we will offer a Software Contract, which will include such items as royalties, advances, and program and documentation changes required (if any). You will be asked to complete and test any program modifications agreed to in the Software Contract, and *PC Disk Magazine* will conduct a formal validation of the program and documentation.

We estimate that this process, from our initial evaluation to publication, takes approximately 3 to 6 months. This estimate is dependent upon a number of factors, and the process may take more or less time for your submission.

We look forward to hearing from you.

GAMES

HIDE AND SINK
By Mirror Images Software Inc.

Special Requirements: Color Monitor and Adapter.
Files Used: HIDESINK.BAS
            BDATA2
            BDATA

It's anchors aweigh with HIDE AND SINK, *a simulated war game played on opposing sea grids. As captain of the home fleet, your mission is to locate and destroy the enemy fleet, while preserving the safety of your own ships.*

   Both strategy and luck play a part as you and the enemy (the computer) first hide your fleets and then proceed to alternate salvos. The horizontal and vertical sea-grid coordinates are used to specify positions for hiding ships and taking shots. Although your ships are shown on your grid, the computer cannot see them; just as you cannot see the enemy ships.

   HIDE AND SINK *offers three games of increasing complexity:* STANDARD HIDE AND SINK, SUPER HIDE AND SINK, *and* SUPER-SALVO HIDE AND SINK. *Each game can*

also be played with a Nighttime option, which increases the difficulty of finding the position and type of enemy ships.

GETTING STARTED
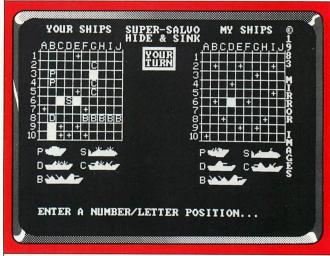
To start *HIDE AND SINK*, first load Advanced BASIC into your PC by typing:

BASICA ⏎

Then put your *PC Disk Magazine* diskette in the default drive and type:

RUN "HIDESINK ⏎

After display of the title page, you will be asked whether you want to play with sound on. You are then asked which of the three game options you want to play, and finally, whether you want to play with the Nighttime feature.

The game screen—battle in progress.

THE GAME SCREEN

After you have selected your options, the game screen will appear. Observe the two opposing 10-by-10 sea grids each labeled with numbers 1-10 down the left and letters A-J across the top. Positions on the grids are located using a number/letter combination, such as 2D or 9G.

Under each grid, the five ships in the fleet are on status display. Each ship is a specific length and possesses a certain amount of firepower.

EACH SHIP IS A SPECIFIC LENGTH AND POSSESSES A CERTAIN AMOUNT OF FIREPOWER.

SHIP	LABEL	LENGTH	FIREPOWER
PT Boat	P	2	2 missiles
Submarine	S	3	3 missiles
Destroyer	D	3	1 gun
Cruiser	C	4	2 guns
Battleship	B	5	3 guns

When a ship is hit or sunk or missiles are fired, the corresponding ship status display illustrates the action. For example, flames appear on the ship status display where it has been hit; missiles are shown firing from a PT boat or Submarine; and when a ship is sunk, a large X crosses out the appropriate status display. On the grids themselves, a ship's colored label letter appears in the coordinate where the ship was damaged.

Beneath the fleet status display is the prompt area where questions, warnings, and instructions help guide you through the game. The first message tells you that the enemy fleet is being hidden. It is then the home fleet's turn to hide.

HIDE...

You hide your ships, one by one, on the left sea-grid. A prompt will ask you to enter a number/letter combination for one end of the PT boat first. For example, to locate the PT boat near the center of the grid, type:

5E ↵

A marker (X) will appear in the position indicated and another prompt will ask if you would like the ship to extend either down (D) or to the right (R) of the marked location. For example, to orient the ship horizontally, type:

R ↵

After this entry the ship's label letter will show where on the grid the ship is anchored. You will not be able to extend the ship to the left or upward of the marker. Additionally, once this initial number/letter combination has been entered, you cannot change it.

Hide the rest of your fleet in the same manner. Error messages and prompts for each ship help you through the process. After hiding the last ship (the Battleship), it is the home fleet's turn to commence firing.

...AND SINK

Your home fleet starts the battle by entering a number/letter location on the enemy's sea grid. The shot is marked at that position. You may continue entering shots and firing missiles as long as you are prompted. All shots in a single turn are listed between the opposing grids. When firing a missile you will have to specify whether the PT boat or the Submarine is launching the missile. Once a shot has been entered, it may not be changed.

When your turn is over, the enemy fires at the home fleet grid and appropriate markers will appear. After all shots from both fleets have been fired, the markers locating the shots will land one by one, either in the water or on a ship. Appropriate markers will indicate whether the shot was a hit or miss.

The entire length of a ship must be ablaze for it to be sunk. For instance, it takes three hits to sink a Destroyer.

THE ENTIRE LENGTH OF A SHIP MUST BE ABLAZE FOR IT TO BE SUNK.

THE GAMES

STANDARD HIDE AND SINK

a. Each fleet has only one shot each turn.

b. Missiles on Submarines and PT boats cannot be used.

c. Play ends when either fleet is entirely sunk.

d. The winner must have at least one gun or missile still afloat.

SUPER HIDE AND SINK

a. Each fleet may shoot only one gun each turn.

b. One missile may be fired each turn if desired. Only five missiles are available, so use them with discretion. Once the missiles are used up the Submarine and PT boat are helpless.

c. Guns and missiles are destroyed when hit and may not be used for the remainder of the game. The status display will indicate whether any weaponry was damaged.

d. Play ends when all firepower in either fleet is destroyed or used up. All ships need not be sunk, just put out of action. A ship is out of action when its missiles are used up or all its missile launchers and guns are disabled.

e. The winner must have at least one gun or missile afloat.

SUPER-SALVO HIDE AND SINK

a. Each fleet shoots all able guns each turn. Initially, each fleet has six guns afloat so you may enter at least six shots your first turn.

b. As many missiles as desired (or that remain afloat) may be fired each turn.
Again, be frugal with missiles; once used, the Submarine and PT boat are helpless targets.

c. Firepower destroyed may not be used for the rest of the game.

d. Play ends when either fleet is totally defenseless. All ships need not be sunk.

e. The winner must have at least one gun or missile afloat.

NIGHTTIME

The Nighttime feature impairs you and your fleet and adds guesswork to the game. Hits on enemy ships are not recorded on the enemy's status display. On the sea grid, hits are shown with a blue cloud of smoke, but not marked with a colored label letter. This makes the game more difficult as you cannot see what ship or where on it a hit was scored. Therefore, more shots are used up trying to locate the remainder of a damaged ship. Once sunk, however, the ship will be X'ed out. Enemy missiles are not displayed when fired. So it's up to you to keep track of the number of missiles fired and from which boat you think they came.

Your status is always displayed, but the computer enemy does not have this knowledge; so the same conditions apply for both fleets.
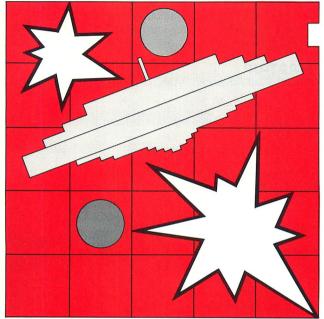
To end the game at any time, press:

| Ctrl | Scroll Lock |

and you will be returned to BASIC.

THE NIGHTTIME FEATURE IMPAIRS YOU AND YOUR FLEET.

PYRAMID MATCH
By Paul Somerson

Special Requirements: None
Files Used: PYRAMID.BAS

Here's a game in which you'll be competing against time—and patience. The question is, which will run out first? It requires speed, a superb memory, and a remarkable level of accuracy. One slip and the game's over. But, you're in luck, it's geared for beginners as well as superhumans. It's called PYRAMID MATCH. *After a few hours of play, you may be tempted to call it something else.*

Here's how it works. You're presented with an ever-increasing list of numbers starting with a single digit and build-

ing play by play to a string of digits longer than you can re-
member. And you have to remember them. After the line of
digits is presented to you, you've got to type them in on your
keyboard. If this is done correctly, you'll proceed to the next
line in the ever growing pyramid. And don't forget the clock is
always running.

The game continues until you enter an incorrect number, or
run out of time. Depending upon which level of difficulty you
choose, you have anywhere from 10 to 90 seconds in which
to play the game.

START-UP

To start, load Advanced BASIC into your PC by typing:

BASICA ↵

Then put your *PC Disk Magazine* diskette in the default drive
and type:

RUN"PYRAMID ↵

The title screen will appear with the request: "Hit any key to
continue." (This is the easy part.) If you have a color graphics
adapter, you will be asked if you want to play in color. For col-
or or monochrome play you are then asked if you want silent
play, and finally if you want instructions.

Following the instructions request prompt, you select a lev-
el of difficulty. If you have never played before, choose cate-
gory 1, "Drooling Infant." If you consider yourself a real ex-
pert at number games, you might try going for number 10
(only ten seconds in which to win the game), "Visitor from an
Advanced Civilization." If you manage to get to level 10 of the
pyramid, check your birth certificate. You may very well be a
visitor from another planet!
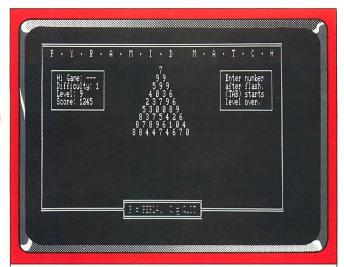
SELECT A LEVEL OF DIFFICULTY.

Your choice of the level of difficulty determines three key
features of the game: the amount of time you have to play, the
length of exposure for each number, and the starting point
value for your guesses. The higher the level of difficulty, the
less time you have to play—10 seconds less for each higher
level of difficulty, from a maximum of 90 seconds to a mini-
mum of 10. Similarly, the higher the difficulty level the shorter
the exposure time for each guess number. Lastly, the starting
point value for your guesses goes up 20 points for each high-
er level of difficulty, from a minimum of 130 points for a first
guess to 290 points. Once the game is underway, whatever
the level of difficulty, each succeeding level of the pyramid is
worth 10 points more than the preceding level, and each re-
quest to see a number again (explained further below) sub-
tracts 25 points from your score.

The game screen—a level 9 achievement.

THE GAME SCREEN

Once you've selected a level of difficulty, the game screen will be displayed. The upper left-hand box lists the high score for the playing session in progress (not the highest score ever, only for the current series of play), the difficulty level, the level of the pyramid you're on (at the beginning of the game it will register 1), and your score. The right-hand box notes that you should enter the correct number(s) following the flash on your screen. Numbers will only be displayed for a brief instant, so pay attention. But, you can see the number again by pressing:
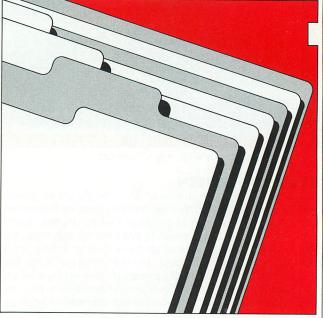
the Tab key. That will start the current level over again by redisplaying the number for that level. There's a catch. Every time you ask to see a line of the pyramid again, you lose 25 points.

At the start of each game you'll see a countdown (beginning with 160) in the box at the bottom of the screen. During this countdown the computer is generating the pyramid numbers for the game to be played. When the count reaches 0, the first number of the pyramid will appear at the top center of the screen. Enter that number. As you enter numbers correctly, new numbers will be presented to you until you make a mistake or run out of time. The clock is displayed in the same box as the countdown at the bottom of the screen. To spice up the game, you may consider playing a series to see who can get the highest cumulative score in a time interval spanning several rounds of the game. Use strategy to select your highest scoring combination of difficulty levels.

When the game is over, you have the option of a replay (R), or quit (Q). It won't be long before you wish there was a kill option as well. Good luck.

NEW LINES WILL BE PRESENTED UNTIL YOU MAKE A MISTAKE OR RUN OUT OF TIME.

DATA FILES

DEMOGRAPHIC DATA FILE
By U.S. Census Bureau

Special Requirements: None
Files Used: DEMOSTAT.DAT
DEMOREAD.BAS

If you've ever wondered what the odds are of getting divorced in New Jersey, what the likelihood is of being poor in Iowa, how many people live on the same square mile of land you're thinking of living on in Colorado, or what the odds are of meeting that special person in Oklahoma, THE DEMOGRAPHIC DATA FILE *is for you. It's an ideal tool for students, planning professionals, and curious home users.*

THE DEMOGRAPHIC DATA FILE *provides 15 items of demographic information by state, from the official 1980 U.S. Census. In addition to the data file itself, there is a small program that reads the data into memory. With this program you can look at and manipulate the demographic statistics, as well as use the data in your own program.*

BACKGROUND

The name of the file containing the demographic data is

DEMOSTAT.DAT. There is a one-line entry in this file for every state, plus the District of Columbia. The information for each state, in order, is as follows.

1. U.S. Post Office State abbreviation.
2. 1980 population (in 000's).
3. % change in population, 1970-1980.
4. Population density (people/square mile).
5. 1980 Population % male.
6. 1980 Population % urban.
7. 1980 Over-25 Population % with college degrees.
8. Median age.
9. # of people below poverty level (in 000's).
10. Married spouse households (in 000's).
11. Single spouse households (in 000's).
12. Non-married households (in 000's).
13. # occupied housing units (in 000's).
14. Per capita income, 1980 dollars.
15. Median monthly mortgage costs (owner-occupied, noncondominium, single family houses).
16. Median monthly rent.

These data items are always in the same order for each state; the states themselves are in no particular order. These data items are separated by commas within the file. There is a carriage return at the end of the line for each state, and all of the data is stored as standard ASCII characters. Thus, you can print the file *DEMOSTAT.DAT,* or call it into a standard editor, if you want to see the data itself. However, the absence of spaces in the file makes it very hard to read. To retrieve, manipulate, and report this demographic data, you would do well to use the accompanying program *DEMOREAD*.

DEMOREAD is a very simple BASIC program. All it does is read the data present in *DEMOSTAT.DAT* into two variables: STATE$ and STATS. The first variable, STATE$, is a 51 element character array, which receives all the two-letter state abbreviations when the data file is read. STATS is a 51-by-15 single precision numeric array which receives the 15 demographic statistics for each state when the data file is read.

DEMOREAD fills one other variable, LABEL$. This 15 element character array is filled with a short label for each of the 15 demographic items. These labels are not in the data file. They are in the *DEMOREAD* program itself in a DATA statement from which they are read into LABEL$.

THE DATA FILE IS READ INTO MEMORY.

START-UP

To execute *DEMOREAD,* load Advanced BASIC into your PC by typing:

BASICA ⏎

Then put the *PC Disk Magazine* diskette in the default drive and type:

RUN "DEMOREAD ⏎

The screen will be cleared and the program will tell you it is "READING DATA." When the reading process is complete you will see the message "DEMOGRAPHIC DATA FILE

READ." The three key variable arrays, STATE$, STATS, and LABEL$ are now filled.

ACCESS
You can now work with these variables in BASIC's Direct Mode. For example, type:

<div align="center">

PRINT LABEL$ (7), STATE$ (32),

STATS (32,7) ⏎

</div>

and you will see the label "Median Age" followed by the state abbreviation "TN" followed by the median age for the state of Tennessee. You can display and manipulate any of the demographic data directly with these three variables.

To do more elaborate manipulation and display, you will probably want to include *DEMOREAD* as a subroutine in your own program. To do so, simply change the END on line 210 to a RETURN, renumber the program as necessary, and save it as an ASCII file by typing:

<div align="center">

SAVE *"somename"*,A ⏎

</div>

Before executing this SAVE command you should replace the *PC Disk Magazine* diskette with a work diskette so there will be space available for the saved file. You can then merge *DEMOREAD* as a subroutine into your own program at any time by typing:

<div align="center">

MERGE *"somename* ⏎

</div>

YOU CAN USE THE INFORMATION READ BY THE PROGRAM FOR DISPLAY AS IT IS, OR YOU CAN USE IT IN A PROGRAM OF YOUR OWN.

```
                Profile of Household Types by State
                      Data from 1980 Census

                      TOTAL
         STATE     HOUSEHOLDS    % MARRIED    % SINGLE    % NON-MARRIED

          ME          541          8.3         18.7          73.0
          NH          443          7.9         19.2          72.9
          VT          247          7.7         20.2          72.1
          MA         2902          9.5         20.4          70.1
          RI          477          9.4         19.5          71.1
          CT         1523          9.9         18.3          71.8
          NY         9242         10.6         20.8          68.6
          NJ         3537         10.5         17.4          72.1
          PA         5832          9.2         18.4          72.4
          OH         5267          8.6         18.6          72.8
          IN         2621          8.6         17.9          73.5
          IL         5745         10.2         19.4          70.4
          MI         4428          9.7         18.1          72.2
          WI         2257          7.2         19.6          73.2
          MN         1989          6.9         20.4          72.6
          IA         1425          6.3         19.8          73.9
          MO         2481          8.3         19.4          72.3
          ND          308          6.2         19.8          74.0
          SD          330          6.7         19.7          73.6
          NE          781          6.5         20.4          73.1
          KS         1191          6.9         19.9          73.2
          DE          288         10.1         18.1          71.9
          MD         2062         11.2         18.0          70.9
          DC          430         13.5         27.7          58.8
          VA         2577          9.6         18.1          72.3
          WV          922          8.6         17.0          74.4
          NC         2797         10.2         16.7          73.0
          SC         1404         10.8         15.8          73.4
          GA         2596         11.1         16.8          72.1
          FL         5235          8.4         20.0          71.5
          KY         1697          9.3         16.3          74.4
          TN         2209         10.0         16.7          73.3
          AL         1832         10.3         16.5          73.3
          MS         1144         11.7         16.0          72.3
          AR         1103          8.7         17.3          74.0
          LA         1965         10.8         17.4          71.9
          OK         1519          7.2         19.1          73.7
          TX         6769          8.8         18.4          72.8
          MT          387          6.7         19.9          73.4
          ID          430          6.7         17.9          75.3
          WY          223          5.8         19.7          74.4
```

Using the data in one's own program—a sample report.

OMING UP

DISK LABEL
Program by Peter Norton enabling you to add/modify/delete label on any diskette.

DISK INVENTORY
Lets you maintain an integrated inventory of the files on all your diskettes.

DIRECTORY LISTER
Sort the file directory for any diskette on any characteristic (name, extension, etc.). Display or print sorted list.

BASIC CROSS REFERENCE
Comprehensive technical reference for BASIC programs with variable lists and line locations, subroutine invocation and entry points, and more.

PERSONAL CASH FLOW MANAGER - Part II
Adds handling of other cash accounts (credit cards, savings) and inter-account transactions, as well as maintenance of historical records.

ENCRYPT/DECRPYT
Program to protect programs and data by one of two encryption methods.

LEASE/PURCHASE MODELER
Compare lease/purchase alternatives with present value calculations.

CHECKERS
Play checkers against the computer.

PANGO
An arcade-style action game requiring manual speed and coordination.

PC DISK
MAGAZINE

QUESTIONNAIRE

(To Be Completed by the Household's Primary User of the Magazine)

The questionnaire below is designed to help the editors of *PC Disk Magazine* shape its editorial content to be of greater interest to its audience. Therefore, we would appreciate your filling in the questions below and returning this form in the envelope provided. 6-1

1. How long have you been involved in microcomputing? _____years or _____months (7-9)

2. Please provide the following information about the microcomputer you plan to use *PC Disk Magazine* programs for.

Manufacturer _____ (10-12)

Model _____

Memory Capacity_____ (13-15)

Number of disk drives: _____(16)   Are they: 17-1 ☐ Single sided   -2 ☐ Double sided

Is the disk operating system: 18-1 ☐ DOS1.1   -2 ☐ DOS2.0   -3 ☐ Other (Specify) _____

Are the display adapters: (Check all that apply)   19-1 ☐ Monochrome   -2 ☐ Color/graphics

3. A. Which of the following do you use with this computer? (Please check all that apply.) For each that you use, please indicate manufacturer and model.

Use

Hard disk	20-1 ☐	Manufacturer_____ Model_____ (21-23)
Printer	-2 ☐	Manufacturer_____ Model_____ (24-26)
Multifunction board	-3 ☐	Manufacturer_____ Model_____ (27-29)
None of the above	-4 ☐	

B. Do you have a modem?   Yes 30-1 ☐   What is its speed?   31-1 ☐ 300 bps   -2 ☐ 1200 bps

No -2 ☐

4. How do you use this microcomputer? (Check all that apply.)

32-1 ☐ At home for personal purposes (not games)
-2 ☐ At home for business/professional purposes
-3 ☐ At home for educational purposes
-4 ☐ At home for entertainment purposes
-5 ☐ At office/place of work
-6 ☐ At school

5. Which of the following types of applications software do you currently use with this microcomputer? (Check all that apply.)

33-1 ☐ Accounting
-2 ☐ Payroll
-3 ☐ Modelling/forecasting
-4 ☐ Other business application
-5 ☐ Word processing
-6 ☐ Portfolio management/analysis

-7 ☐ Programming languages
-8 ☐ Graphics
-9 ☐ Education/training
-0 ☐ Household accounts
-x ☐ Entertainment
-y ☐ Other (Specify) _____ (34)

6. Is this microcomputer owned by you/a member of your household?

35-1 ☐ Yes   -2 ☐ No

7. A. How long ago did you purchase or receive your copy of *PC Disk Magazine?*

_____ weeks   _____ days (36, 37)

B. How did you get this copy of *PC Disk Magazine?*

38-1 ☐ Subscription   -2 ☐ Computer store   -3 ☐ Book store   -4 ☐ Newsstand
-5 ☐ Gift   -6 ☐ Other (Specify) _____

8. A. Why did you decide to purchase (or subscribe to) *PC Disk Magazine?*

39-1 ☐ Wanted to sample a variety of programs
-2 ☐ Had some specific program(s) in which I was interested
-3 ☐ Just curious about it
-4 ☐ Received as a gift

8. B. What other reasons did you have for deciding to purchase (or subscribe to) *PC Disk Magazine?*

_____ 40-

_____ 41-

_____ 42-

C. In general, do you think a disk magazine is a good idea, or a poor idea. Please circle the appropriate number below.

Good idea   5   4   3   2   1   Poor idea (43)

9. A. We would like to get your reactions to each of the various programs in *PC Disk Magazine.* First, please indicate which of the programs you have tried. (Please check all that apply.)

B. Thinking about your microcomputing activities and interests, which of the following programs are most important to you? (Please check all that apply.)

C. *For each of the programs you have tried,* please rate your satisfaction with the quality of that program. Give a program a "5" if you are very satisfied with it, give it a "1" if you are very dissatisfied and give it a "4", "3" or "2" to indicate ratings in between.

For Each Program Tried, Are You:

	Have Tried	Most Important Programs	Very Satisfied 5	4	3	2	Very Dissatisfied 1
Loan Analyzer	44-1 ☐	45-1 ☐	☐	☐	☐	☐	(46) ☐
Automatic Bar Charter	-2 ☐	-2 ☐	☐	☐	☐	☐	(47) ☐
WordStar Configurator	-3 ☐	-3 ☐	☐	☐	☐	☐	(48) ☐
Basic Program Editor	-4 ☐	-4 ☐	☐	☐	☐	☐	(49) ☐
Perpetual Calendar	-5 ☐	-5 ☐	☐	☐	☐	☐	(50) ☐
Personal Cash Flow Manager	-6 ☐	-6 ☐	☐	☐	☐	☐	(51) ☐
Disk Map	-7 ☐	-7 ☐	☐	☐	☐	☐	(52) ☐
IBM Matrix Printer Control	-8 ☐	-8 ☐	☐	☐	☐	☐	(53) ☐
Demographic Data File	-9 ☐	-9 ☐	☐	☐	☐	☐	(54) ☐
Hide and Sink	-0 ☐	-0 ☐	☐	☐	☐	☐	(55) ☐
Pyramid Match	-x ☐	-x ☐	☐	☐	☐	☐	(56) ☐

10. What kinds of programs would you like to see included in future issues of *PC Disk Magazine?*

_____ 57-

_____ 58-

_____ 59-

11. How would you rate *PC Disk Magazine* on each of the following?

	Excellent	Good	Fair	Poor
The variety of programs included	4 ☐	3 ☐	2 ☐	1 ☐ (60)
The quality of the programs included	4 ☐	3 ☐	2 ☐	1 ☐ (61)
The quality of the documentation	4 ☐	3 ☐	2 ☐	1 ☐ (62)

12. (The following information is asked for classification purposes only)

A. What is your sex?   63-1 ☐ Male   -2 ☐ Female

B. What is your age? _____ years (64,65)

C. What is the highest level of education you have attained?

66-1 ☐ Did not (yet) graduate from high school
-2 ☐ High school graduate
-3 ☐ Attended (attending) college; did not (yet) graduate
-4 ☐ College graduate
-5 ☐ Post graduate study; no advanced degree (yet)
-6 ☐ Master's degree or equivalent
-7 ☐ Doctorate

D. Aside from yourself, which other members of your household, if any, will use *PC Disk Magazine* programs? (Please check all that apply).

	Will use		Will use
Male head of household	67-1 ☐	Child, age 18 or older	-4 ☐
Female head of household	-2 ☐	Child, age 15-17	-5 ☐
Other adult	-3 ☐	Child, age 12-14	-6 ☐
		Child, under 12 years of age	-7 ☐

E. What is your best estimate of your household's 1982 pre-tax income? Please include income of all household members from all sources (rents, dividends, wages, etc.) in your estimate.

68-1 ☐ Under $15,000
-2 ☐ $15,000-$24,999
-3 ☐ $25,000-$34,999
-4 ☐ $35,000-$44,999
-5 ☐ $45,000-$54,999
-6 ☐ $55,000-$64,999
-7 ☐ $65,000-$74,999
-8 ☐ $75,000-$99,999
-9 ☐ $100,000 and over
(If $100,000 or more, specify amount) _____ (69-71)

THANK YOU FOR YOUR COOPERATION.

(8/83)

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